

SEARCH REQUEST FORM

Scientific and Technical Information Center

Requester's Full Name: Ganapathy Krishnan Examiner #: 79271 Date: 9/14/02
Art Unit: 1623 Phone Number 305-4837 Serial Number: 09/830744
Mail Box and Bldg/Room Location: 8D08 Results Format Preferred (circle): PAPER DISK E-MAIL
8B19

If more than one search is submitted, please prioritize searches in order of need. mej

Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of Invention: Cross-linking process of carboxylated Polysaccharide
Inventors (please provide full names): Rolando Barbucci; Giancarlo Spartoletti

Earliest Priority Filing Date: _____

For Sequence Searches Only Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.

Please search claims 1-11

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Searcher: _____ Point of Contact:
Alexandra Wacławiw
Searcher Phone #: Technical Info. Specialist
CM1 8A02 Tel: 308-4491
Searcher Location: _____
Date Searcher Picked Up: 9-26-02
Date Completed: 9-30-02
Searcher Prep & Review Time: _____
Clerical Prep Time: _____
Online Time: _____

Type of Search

NA Sequence (#) _____
AA Sequence (#) _____
Structure (#) _____
Bibliographic ☒ _____
Litigation _____
Fulltext _____
Patent Family _____
Other _____

Vendors and cost where applicable

STN \$ 626.00
Dialog _____
Questel/Orbit _____
Dr.Link _____
Lexis/Nexis _____
Sequence Systems ☒ _____
WWW/Internet _____
Other (specify) _____

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(FILE 'HOME' ENTERED AT 14:11:22 ON 26 SEP 2002)

FILE 'REGISTRY' ENTERED AT 14:11:32 ON 26 SEP 2002

ACT POLYSACCH/A

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L1 (      1)SEA FILE=REGISTRY ABB=ON  PLU=ON  "HYALURONIC ACID"/CN
L2 (      1)SEA FILE=REGISTRY ABB=ON  PLU=ON  "DEXTRAN, CARBOXYMETHYL ETHER
L3 (      1)SEA FILE=REGISTRY ABB=ON  PLU=ON  "CELLULOSE, CARBOXYMETHYL ETH
L4 (      1)SEA FILE=REGISTRY ABB=ON  PLU=ON  "STARCH, CARBOXYMETHYL ETHER"
L5 (      1)SEA FILE=REGISTRY ABB=ON  PLU=ON  "ALGINIC ACID"/CN
L6 (      1)SEA FILE=REGISTRY ABB=ON  PLU=ON  "CELLULOSIC ACID"/CN
L7 (      2)SEA FILE=REGISTRY ABB=ON  PLU=ON  ("D-GLUCAN, CARBOXYMETHYL ETH
L8 (      1)SEA FILE=REGISTRY ABB=ON  PLU=ON  "D-GLUCAN, 4-CARBOXYBUTYL ETH
L9 (      1)SEA FILE=REGISTRY ABB=ON  PLU=ON  CHITOSAN/CN
L10 (     1)SEA FILE=REGISTRY ABB=ON  PLU=ON  HEPARIN/CN
L11 (     1)SEA FILE=REGISTRY ABB=ON  PLU=ON  "DERMATAN SULFATE"/CN
L12 (     1)SEA FILE=REGISTRY ABB=ON  PLU=ON  "CHONDROITIN SULFATE"/CN
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L15      14 SEA FILE=REGISTRY ABB=ON  PLU=ON  (L1 OR L2 OR L3 OR L4 OR L5 O

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ACT CARBOXYAG/A

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      E DIMETHYLFORMAMIDE/CN
L17      1 S E3
      E TETRAHYDROFURAN/CN
L18      1 S E3
L19      2 S L18 OR L17

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FILE 'HCAPLUS' ENTERED AT 14:14:39 ON 26 SEP 2002

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L20      61148 S L15
L21      71232 S L20 OR (HYALURONIC OR CELLULOSIC OR ALGINIC) (2W) ACID# CARB
L22      73578 S L21 OR (DERMATAN OR CHONDROITIN) (2W) SULFATE#
L23      73610 S L22 OR CARBOXYMETHYL (2A) GLUCAN# OR CARBOXYMETHYLGLUCAN#
L24      13749 S L16 OR CARBONYLDIIMIDAZOLE OR CARBONYLTRIAZOLE OR CHLOROMETHY
L25      17550 S L24 OR NITROPHENYLTRIFLUOROACETATE# OR HYDROXYSUCCINIMIDE#
L26      186 S L23 AND L25
L27      873 S CARBOXY (3A) AGENT#
L28      18422 S L27 OR L25
L29      216 S L28 AND L23
L30      151351 S CROSSLINK? OR CROSS LINK?
L31      49 S L29 AND L30
L32      13674 S CARBOXY### (L) (GROUP# OR GRP#)
L33      43077 S (CARBOXY### (4A) (GROUP# OR GRP#))/AB
L34      52513 S L32 OR L33 OR L27
L35      69718 S L34 OR L25
L36      1503 S L23 AND L35
L37      157 S L36 AND L30
L38      36076 S POLYAMIN? OR POLY (L) AMINE#
L39      9 S L37 AND L38
L40      6 S L31 AND L38
L41      9 S L40 OR L39

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FILE 'REGISTRY' ENTERED AT 14:39:33 ON 26 SEP 2002

FILE 'HCAPLUS' ENTERED AT 14:40:24 ON 26 SEP 2002

FILE 'REGISTRY' ENTERED AT 14:40:47 ON 26 SEP 2002

E POLYAMINE/PCT

Krishnan 09/830744

FILE 'HCAPLUS' ENTERED AT 14:45:54 ON 26 SEP 2002

FILE 'REGISTRY' ENTERED AT 14:46:21 ON 26 SEP 2002

FILE 'HCAPLUS' ENTERED AT 14:47:23 ON 26 SEP 2002
SELECT RN L*** 1

FILE 'REGISTRY' ENTERED AT 14:47:42 ON 26 SEP 2002
SAVE L*** HYALURAMINE/A
ACT HYALURAMINE/A

L42 (283)SEA FILE=REGISTRY ABB=ON PLU=ON 9004-61-9/CRN
L43 (56)SEA FILE=REGISTRY ABB=ON PLU=ON L42 AND PMS/CI
L44 (19)SEA FILE=REGISTRY ABB=ON PLU=ON L43 AND N/ELS
L45 (561)SEA FILE=REGISTRY ABB=ON PLU=ON HYALURONIC OR HYALURONATE
L46 (98)SEA FILE=REGISTRY ABB=ON PLU=ON L45 AND PMS/CI
L47 (38)SEA FILE=REGISTRY ABB=ON PLU=ON L46 AND N/ELS
L48 38 SEA FILE=REGISTRY ABB=ON PLU=ON L47 OR L44

FILE 'HCAPLUS' ENTERED AT 14:52:37 ON 26 SEP 2002

L49 20 S L48
L50 8 S L49 AND L30
L51 17 S L50 OR L41

FILE 'REGISTRY' ENTERED AT 14:53:38 ON 26 SEP 2002

=> fil hcaplus
 FILE 'HCAPLUS' ENTERED AT 14:54:01 ON 26 SEP 2002
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FILE COVERS 1907 - 26 Sep 2002 VOL 137 ISS 13
 FILE LAST UPDATED: 25 Sep 2002 (20020925/ED)

This file contains CAS Registry Numbers for easy and accurate substance identification.

CAS roles have been modified effective December 16, 2001. Please check your SDI profiles to see if they need to be revised. For information on CAS roles, enter HELP ROLES at an arrow prompt or use the CAS Roles thesaurus (/RL field) in this file.
 'OBI' IS DEFAULT SEARCH FIELD FOR 'HCAPLUS' FILE

=> d que 151

L1 (	1)SEA FILE=REGISTRY ABB=ON	PLU=ON	"HYALURONIC ACID"/CN
L2 (	1)SEA FILE=REGISTRY ABB=ON	PLU=ON	"DEXTRAN, CARBOXYMETHYL ETHER"/CN
L3 (	1)SEA FILE=REGISTRY ABB=ON	PLU=ON	"CELLULOSE, CARBOXYMETHYL ETHER"/CN
L4 (	1)SEA FILE=REGISTRY ABB=ON	PLU=ON	"STARCH, CARBOXYMETHYL ETHER"/CN
L5 (	1)SEA FILE=REGISTRY ABB=ON	PLU=ON	"ALGINIC ACID"/CN
L6 (	1)SEA FILE=REGISTRY ABB=ON	PLU=ON	"CELLULOSIC ACID"/CN
L7 (	2)SEA FILE=REGISTRY ABB=ON	PLU=ON	("D-GLUCAN, CARBOXYMETHYL ETHER"/CN OR "D-GLUCAN, CARBOXYMETHYL ETHER, SODIUM SALT"/CN)
L8 (	1)SEA FILE=REGISTRY ABB=ON	PLU=ON	"D-GLUCAN, 4-CARBOXYBUTYL ETHER"/CN
L9 (	1)SEA FILE=REGISTRY ABB=ON	PLU=ON	CHITOSAN/CN
L10 (1)SEA FILE=REGISTRY ABB=ON	PLU=ON	HEPARIN/CN
L11 (1)SEA FILE=REGISTRY ABB=ON	PLU=ON	"DERMATAN SULFATE"/CN
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L14 (1)SEA FILE=REGISTRY ABB=ON	PLU=ON	9003-01-4
L15	14 SEA FILE=REGISTRY ABB=ON	PLU=ON	(L1 OR L2 OR L3 OR L4 OR L5 OR L6 OR L7 OR L8 OR L9 OR L10 OR L11 OR L12 OR L13 OR L14)
L16	5 SEA FILE=REGISTRY ABB=ON	PLU=ON	530-62-1 OR 267882-31-5 OR 71849-58-6 OR 100-02-7 OR 658-78-6
L20	61148 SEA FILE=HCAPLUS ABB=ON	PLU=ON	L15
L21	71232 SEA FILE=HCAPLUS ABB=ON	PLU=ON	L20 OR (HYALURONIC/OBI OR CELLULOSIC/OBI OR ALGINIC/OBI) (2W) ACID# CARBOXYMETHYLDEXTRAN/O BI OR CARBOXYMETHYLCELLULOSE/OBI OR CARBOXYMETHYLSTARCH/OBI OR HEPARIN#/OBI OR CHITOSAN#/OBI
L22	73578 SEA FILE=HCAPLUS ABB=ON	PLU=ON	L21 OR (DERMATAN/OBI OR CHONDROITIN/OBI) (2W) SULFATE#/OBI
L23	73610 SEA FILE=HCAPLUS ABB=ON	PLU=ON	L22 OR CARBOXYMETHYL/OBI (2A) GLUCAN#/OBI OR CARBOXYMETHYLGLUCAN#/OBI

L24 13749 SEA FILE=HCAPLUS ABB=ON PLU=ON L16 OR CARBONYLDIIMIDAZOLE/OBI
OR CARBONYLTRIAZOLE/OBI OR CHLOROMETHYLPYRIDILIUM IODIDE/OBI
OR HYDROXYBENZOTRIAZOLE/OBI OR (P/OBI OR PARA/OBI) (2W)
NITROPHENOL?/OBI

L25 17550 SEA FILE=HCAPLUS ABB=ON PLU=ON L24 OR NITROPHENYLTRIFLUOROACE
TATE#/OBI OR HYDROXYSUCCINIMIDE#/OBI

L27 873 SEA FILE=HCAPLUS ABB=ON PLU=ON CARBOXY/OBI (3A) AGENT#/OBI

L28 18422 SEA FILE=HCAPLUS ABB=ON PLU=ON L27 OR L25

L29 216 SEA FILE=HCAPLUS ABB=ON PLU=ON L28 AND L23

L30 151351 SEA FILE=HCAPLUS ABB=ON PLU=ON CROSSLINK?/OBI OR CROSS
LINK?/OBI

L31 49 SEA FILE=HCAPLUS ABB=ON PLU=ON L29 AND L30

L32 13674 SEA FILE=HCAPLUS ABB=ON PLU=ON CARBOXY###/OBI (L) (GROUP#/OBI
OR GRP#/OBI)

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GRP#)) /AB

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L36 1503 SEA FILE=HCAPLUS ABB=ON PLU=ON L23 AND L35

L37 157 SEA FILE=HCAPLUS ABB=ON PLU=ON L36 AND L30

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AMINE#/OBI

L39 9 SEA FILE=HCAPLUS ABB=ON PLU=ON L37 AND L38

L40 6 SEA FILE=HCAPLUS ABB=ON PLU=ON L31 AND L38

L41 9 SEA FILE=HCAPLUS ABB=ON PLU=ON L40 OR L39

L42 (283) SEA FILE=REGISTRY ABB=ON PLU=ON 9004-61-9/CRN

L43 (56) SEA FILE=REGISTRY ABB=ON PLU=ON L42 AND PMS/CI

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L45 (561) SEA FILE=REGISTRY ABB=ON PLU=ON HYALURONIC OR HYALURONATE

L46 (98) SEA FILE=REGISTRY ABB=ON PLU=ON L45 AND PMS/CI

L47 (38) SEA FILE=REGISTRY ABB=ON PLU=ON L46 AND N/ELS

L48 38 SEA FILE=REGISTRY ABB=ON PLU=ON L47 OR L44

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L50 8 SEA FILE=HCAPLUS ABB=ON PLU=ON L49 AND L30

L51 17 SEA FILE=HCAPLUS ABB=ON PLU=ON L50 OR L41

=> d .ca hitstr l51 1-17

L51 ANSWER 1 OF 17 HCAPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 2002:615978 HCAPLUS

DOCUMENT NUMBER: 137:151990

TITLE: Biochip and its manufacturing method

INVENTOR(S): Hirota, Toshikazu; Ohnishi, Takao; Yamada, Saichi;
Yamada, Kazunari; Takeuchi, Yukihi

PATENT ASSIGNEE(S): NGK Insulators, Ltd., Japan

SOURCE: PCT Int. Appl., 71 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2002063310	A1	20020815	WO 2002-JP1011	20020207
W: JP				

RW: CH, DE, FI, FR, GB, IT, NL

PRIORITY APPLN. INFO.: JP 2001-32829 A 20010208

AB In this method for manufg. a biochip, multiple kinds of captures (e.g.,
nucleic acid, DNA, cDNA, RNA, antisense RNA, protein, antigen, antibody,
lectin, adhesin, receptor, peptide) capable of specifically reacting with
a test substance and used for obtaining the information on the structure

or function of the test substance are supplied onto a substrate (baseplate), and thereby, numerous spots of the captures are disposed on the substrate. The method comprises a step for supplying an immobilization-reinforcing liq. onto the substrate (first supply step), and a step for supplying a sample obtained in a sample prepn. step onto the immobilization-reinforcing liq. supplied on the substrate beforehand (second supply step). Diagrams describing the biochip assembly and the manufg. method flow are given.

- IC ICM G01N037-00
- ICS G01N033-53
- CC 9-1 (Biochemical Methods)
- IT Functional groups
 - (N-hydroxysuccinimide; biochip and manufg. method)
- IT Adhesion, physical
 - Alkyl groups
 - Amino group
 - Amphiphiles
 - Anions
 - Carboxyl group
 - Cations
 - Crosslinking agents
 - DNA microarray technology
 - Epoxy group
 - Formyl group
 - Immobilization, molecular
 - Ink-jet printing
 - Liquids
 - Microarray technology
 - Mixtures
 - Phenyl group
 - Protein microarray technology
 - Reaction
 - Resists
 - Sample preparation
 - Samples
 - Screen printing
 - Sulfhydryl group
 - (biochip and manufg. method)
- IT Polyamines
 - RL: RCT (Reactant); RACT (Reactant or reagent)
 - (biochip and manufg. method)
- IT 52-90-4, L-Cysteine, uses 58-85-5, Biotin 60-24-2 70-18-8,
 L-Glutathione, uses 71-43-2D, Benzene, alkyl deriv. 77-86-1, TRIS
 110-15-6, Succinic acid, uses 141-43-5, Ethanolamine, uses 157-07-3
 526-95-4, Gluconic acid 9000-11-7, CM cellulose 9001-63-2,
 Lysozyme 9003-01-4, Polyacrylic acid 9004-61-9,
 Hyaluronic acid 9004-67-5, Methylcellulose 9004-70-0, Nitrocellulose
 9013-15-4, Colominic acid 9013-20-1, Streptavidin 25322-68-3,
 Polyethyleneglycol 25322-69-4, Polypropyleneglycol
 RL: NUU (Other use, unclassified); USES (Uses)
 (biochip and manufg. method)
- IT 106-89-8, Epichlorohydrin, reactions 108-30-5, Succinic anhydride,
 reactions 111-30-8, Glutaraldehyde 919-30-2, .gamma.-
 Aminopropyltriethoxysilane 6066-82-6, N-Hydroxysuccinimide
 25104-18-1, Poly-L-lysine
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (biochip and manufg. method)
- IT 9000-11-7, CM cellulose 9003-01-4, Polyacrylic acid
 9004-61-9, Hyaluronic acid
 RL: NUU (Other use, unclassified); USES (Uses)
 (biochip and manufg. method)
- RN 9000-11-7 HCAPLUS
- CN Cellulose, carboxymethyl ether (8CI, 9CI) (CA INDEX NAME)

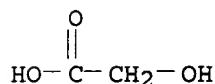
CM 1

CRN 9004-34-6
CMF Unspecified
CCI PMS, MAN

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

CM 2

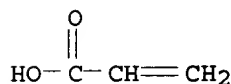
CRN 79-14-1
CMF C2 H4 O3



RN 9003-01-4 HCAPLUS
CN 2-Propenoic acid, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 79-10-7
CMF C3 H4 O2



RN 9004-61-9 HCAPLUS
CN Hyaluronic acid (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L51 ANSWER 2 OF 17 HCAPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 2002:293708 HCAPLUS

DOCUMENT NUMBER: 136:311614

TITLE: Crosslinked amide derivatives of hyaluronic
acid and manufacturing method thereofINVENTOR(S): Moon, Tae-Seok; Lee, Jae-Young; Kim, Jin-Hoon; Han,
Kyu-Boem

PATENT ASSIGNEE(S): LG Chem Investment, Ltd., S. Korea

SOURCE: PCT Int. Appl., 29 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2002030990	A1	20020418	WO 2001-KR1687	20011010

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN,
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH,
GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KZ, LC, LK, LR, LS,
LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PH, PL, PT,

RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US,
 UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
 RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY,
 DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF,
 BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

AU 2001094320 A5 20020422 AU 2001-94320 20011010
 PRIORITY APPLN. INFO.: KR 2000-59443 A 20001010
 WO 2001-KR1687 W 20011010

AB The present invention relates to water-insol., crosslinked amide derivs. of hyaluronic acid and manufg. method thereof, where the amide derivs. of hyaluronic acid are characterized by crosslinking, of polymer or oligomer having two or more amine groups, e.g., chitosan, with hyaluronic acid or its hyaluronate salts through amidation reaction. The water-insol., crosslinked amide derivs. of hyaluronic acid according to the present invention may be diversely used for prevention of adhesion after surgical operation, correction of facial wrinkles, dermal augmentation, tissue engineering, osteoarthritic visco supplement, etc. (no data).

IC ICM C08B037-08

CC 44-5 (Industrial Carbohydrates)
 Section cross-reference(s): 37, 63

ST **polyamine** hyaluronic acid amide **crosslinking** water insol deriv

IT Hydrogels

(**crosslinked** amide derivs. of hyaluronic acid and manufg. method thereof)

IT Polyamides, preparation

RL: IMF (Industrial manufacture); PRP (Properties); PREP (Preparation)
 (mucopolysaccharide-based; **crosslinked** amide derivs. of hyaluronic acid and manufg. method thereof)

IT 2592-95-2, 1-Hydroxybenzotriazole 6066-82-6, N-Hydroxysuccinimide 15580-20-8, 1-Cyclohexyl-3-(2-morpholinoethyl)carbodiimide 22572-40-3, 1-Ethyl-3-(3-(trimethylammonio)propyl)carbodiimide iodide 25952-53-8, 1-Ethyl-3-(3-dimethylaminopropyl)carbodiimide hydrochloride 28230-32-2, 3,4-Dihydro-3-hydroxy-4-oxo-1,2,3-benzotriazine 39968-33-7, 1-Hydroxy-7-azabenzotriazole 82436-78-0, N-Hydroxysulfosuccinimide

RL: CAT (Catalyst use); USES (Uses)
 (activation agent; **crosslinked** amide derivs. of hyaluronic acid and manufg. method thereof)

IT 9004-61-9DP, Hyaluronic acid, deacetylated, **crosslinked** products 412041-98-6P, Chitosan chloride-sodium hyaluronate copolymer

RL: IMF (Industrial manufacture); PRP (Properties); PREP (Preparation)
 (**crosslinked** amide derivs. of hyaluronic acid and manufg. method thereof)

IT 9004-61-9DP, Hyaluronic acid, deacetylated, **crosslinked** products

RL: IMF (Industrial manufacture); PRP (Properties); PREP (Preparation)
 (**crosslinked** amide derivs. of hyaluronic acid and manufg. method thereof)

RN 9004-61-9 HCAPLUS

CN Hyaluronic acid (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L51 ANSWER 3 OF 17 HCAPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 2001:910267 HCAPLUS

DOCUMENT NUMBER: 136:55484

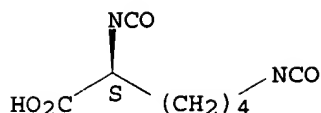
TITLE: Preparation of polyurethane hydrogel containing hyaluronic acid **crosslinking** agent

INVENTOR(S): Hirose, Shigeo; Hatakeyama, Hyoe; Hatakeyama, Tatsuko

PATENT ASSIGNEE(S): Sangyo Gijutsu Sogo Kenkyusho, Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 4 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
	JP 2001348401	A2	20011218	JP 2000-169687	20000606
AB	The patent relates to the prepn. of polyurethane hydrogel having good moisturizing properties by polyimg. a compn. comprising hyaluronic acid (or salt) crosslinker, diol or polyol, and polyisocyanate. The hydrogel is useful in membrane, sepn. material, moisturizer, cosmetic, and pharmaceutical. Thus, hydrogel prepd. from the reaction of sodium hyaluronate (FCH248), ethylene glycol, and lysine diisocyanate showed high water-holding characteristics.				
IC	ICM C08B037-08				
	ICS A61K007-00; A61K047-36				
CC	44-4 (Industrial Carbohydrates)				
	Section cross-reference(s): 33, 37				
ST	hyaluronic acid crosslinking agent polyurethane hydrogel prepn				
IT	Cosmetics				
	(moisturizers; prepn. of polyurethane hydrogel contg. hyaluronic acid crosslinking agent)				
IT	Cosmetics				
	Crosslinking agents				
	Health products				
	Hydrogels				
	Membranes, nonbiological				
	(prepn. of polyurethane hydrogel contg. hyaluronic acid crosslinking agent)				
IT	Polyurethanes, preparation				
	RL: IMF (Industrial manufacture); PRP (Properties); PREP (Preparation)				
	(prepn. of polyurethane hydrogel contg. hyaluronic acid crosslinking agent)				
IT	Polysaccharides, uses				
	RL: MOA (Modifier or additive use); RCT (Reactant); RACT (Reactant or reagent); USES (Uses)				
	(prepn. of polyurethane hydrogel contg. hyaluronic acid crosslinking agent)				
IT	381167-28-8P, Ethylene glycol-lysine diisocyanate-sodium hyaluronate copolymer				
	RL: IMF (Industrial manufacture); PRP (Properties); PREP (Preparation)				
	(prepn. of polyurethane hydrogel contg. hyaluronic acid crosslinking agent)				
IT	381167-28-8P, Ethylene glycol-lysine diisocyanate-sodium hyaluronate copolymer				
	RL: IMF (Industrial manufacture); PRP (Properties); PREP (Preparation)				
	(prepn. of polyurethane hydrogel contg. hyaluronic acid crosslinking agent)				
RN	381167-28-8 HCAPLUS				
CN	Hyaluronic acid, sodium salt, polymer with (2S)-2,6-diisocyanatohexanoic acid and 1,2-ethanediol (9CI) (CA INDEX NAME)				
CM	1				
CRN	34050-00-5				
CMF	C8 H10 N2 O4				

Absolute stereochemistry.



CM 2

CRN 9067-32-7
CMF Unspecified
CCI PMS, MAN

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

CM 3

CRN 107-21-1
CMF C2 H6 O2

HO-CH₂-CH₂-OH

L51 ANSWER 4 OF 17 HCAPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 2001:833387 HCAPLUS

DOCUMENT NUMBER: 135:372507

TITLE: Crosslinking of amine-containing polymers
with activated dicarboxylic acids

INVENTOR(S): Sportoletti, Giancarlo; Barbucci, Rolando

PATENT ASSIGNEE(S): Aquisitio S.p.A., Italy

SOURCE: PCT Int. Appl., 19 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2001085801	A1	20011115	WO 2001-EP5031	20010503

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN,
CO, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM,
HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS,
LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO,
RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ,
VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY,
DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF,
BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG

PRIORITY APPLN. INFO.: IT 2000-MI1030 A 20000510

AB Polymers contg. primary or secondary amino groups are crosslinked by treating with suitably activated dicarboxylic acids; residual amino groups in the crosslinked polymers can be "quenched". The crosslinked polymers are suitable for the prepn. of pharmaceuticals, cosmetics, or medical/surgical devices. Thus, deacetylated hyaluronic acid was crosslinked with aspartic acid nitrophenyl ester and then quenched with pyridine/SO₃ complex.

IC ICM C08B037-08

ICS C08J003-24; C08K005-12

CC 37-6 (Plastics Manufacture and Processing).

Section cross-reference(s): 62, 63

ST amine polymer **crosslinking** dicarboxylic acid; hyaluronic acid
crosslinking aspartic acid

IT Cosmetics
Crosslinking
 Drugs
 Medical goods
 (crosslinking of amine-contg. polymers with activated
 dicarboxylic acids and use in pharmaceuticals, cosmetics, and surgical
 goods)

IT Collagens, preparation
 Elastins
Polyamines
 RL: SPN (Synthetic preparation); TEM (Technical or engineered material
 use); PREP (Preparation); USES (Uses)
 (crosslinking of amine-contg. polymers with activated
 dicarboxylic acids and use in pharmaceuticals, cosmetics, and surgical
 goods)

IT 267882-31-5
 RL: CAT (Catalyst use); USES (Uses)
 (activator; **crosslinking** of amine-contg. polymers with
 activated dicarboxylic acids and use in pharmaceuticals, cosmetics, and
 surgical goods)

IT 9004-61-9DP, Hyaluronic acid, deacetylated, sulfated
 RL: SPN (Synthetic preparation); TEM (Technical or engineered material
 use); PREP (Preparation); USES (Uses)
 (aspartic acid-crosslinked; **crosslinking** of
 amine-contg. polymers with activated dicarboxylic acids and use in
 pharmaceuticals, cosmetics, and surgical goods)

IT 56-84-8, Aspartic acid, reactions 56-86-0, Glutamic acid, reactions
 6915-15-7, Malic acid
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (crosslinker; **crosslinking** of amine-contg. polymers
 with activated dicarboxylic acids and use in pharmaceuticals,
 cosmetics, and surgical goods)

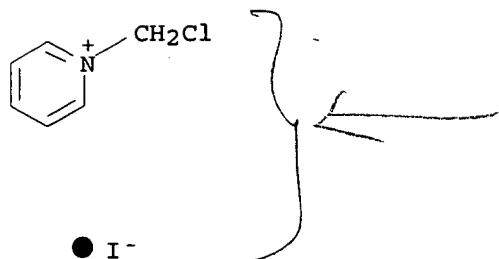
IT 9002-98-6P, Polyaziridine 9012-76-4P, Chitosan
 25104-18-1P, Lysine homopolymer 25189-76-8P, Poly
 (4-vinylimidazole) 26568-78-5P 26937-52-0P, 2-Aminoethyl methacrylate
 homopolymer 30551-89-4P, Poly(allylamine) 38000-06-5P,
 Lysine homopolymer, sru
 RL: SPN (Synthetic preparation); TEM (Technical or engineered material
 use); PREP (Preparation); USES (Uses)
 (crosslinking of amine-contg. polymers with
 activated dicarboxylic acids and use in pharmaceuticals, cosmetics, and
 surgical goods)

IT 88879-44-1P
 RL: SPN (Synthetic preparation); TEM (Technical or engineered material
 use); PREP (Preparation); USES (Uses)
 (deacetylated hyaluronic acid **crosslinked** by;
crosslinking of amine-contg. polymers with activated
 dicarboxylic acids and use in pharmaceuticals, cosmetics, and surgical
 goods)

IT 267882-31-5
 RL: CAT (Catalyst use); USES (Uses)
 (activator; **crosslinking** of amine-contg. polymers with
 activated dicarboxylic acids and use in pharmaceuticals, cosmetics, and
 surgical goods)

RN 267882-31-5 HCAPLUS

CN Pyridinium, 1-(chloromethyl)-, iodide (9CI) (CA INDEX NAME)



IT 9004-61-9DP, Hyaluronic acid, deacetylated, sulfated
 RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
 (aspartic acid-crosslinked; crosslinking of amine-contg. polymers with activated dicarboxylic acids and use in pharmaceuticals, cosmetics, and surgical goods)
 RN 9004-61-9 HCAPLUS
 CN Hyaluronic acid (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

IT 9012-76-4P, Chitosan
 RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
 (crosslinking of amine-contg. polymers with activated dicarboxylic acids and use in pharmaceuticals, cosmetics, and surgical goods)
 RN 9012-76-4 HCAPLUS
 CN Chitosan (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L51 ANSWER 5 OF 17 HCAPLUS COPYRIGHT 2002 ACS
 ACCESSION NUMBER: 2001:676643 HCAPLUS
 DOCUMENT NUMBER: 135:216051
 TITLE: Protein-based endovascular graft coatings
 INVENTOR(S): Williams, Stuart K.; Clapper, David L.
 PATENT ASSIGNEE(S): Surmodics, Inc., USA; The Arizona Board of Regents on behalf of the University of Arizona
 SOURCE: PCT Int. Appl., 29 pp.
 CODEN: PIXXD2
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2001066161	A1	20010913	WO 2001-US40255	20010306
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				

PRIORITY APPLN. INFO.: US 2000-519246 A 20000306

- AB An endovascular graft, e.g., having both an expandable stent portion and a stent cover portion positioned within and/or surrounding the expandable portion, the graft itself and/or a stent cover portion being coated with a bioactive agent adapted to promote initial thrombus formation, preferably followed by long term fibrous tissue ingrowth. The endovascular graft addresses concerns regarding endoleaking by permitting the graft to be deployed and used in a manner that promotes a short term hemostatic effect in the perigraft region. This short term effect can, in turn, be used to promote or permit long term fibrous tissue ingrowth. Particularly where the stent cover portion is prep'd. from a porous material selected from PET and ePTFE, the bioactive agent can include a thrombogenic agent such as collagen covalently attached in the form of a thin, conformal coating on at least the outer surface of the stent cover. An optimal coating of this type is formed by the activation of photoreactive groups provided by either the cover material itself, by the bioactive agent itself, and/or by a linking agent. For example, an endovascular graft was coated by immobilizing bovine skin collagen comprising 95% type I collagen and 5% type III collagen photoderivatized by the addn. of benzoylbenzoic acid-.epsilon.-aminocaproic acid-N-oxy succinimide. The amt. of immobilized photoderivatized collagen was 1.8 .mu./cm² of endovascular graft. Two collagen-immobilized grafts and two non-coated grafts were implanted in dogs; no evidence of endoleaking was obsd. in dogs implanted with coated grafts, but endoleaking was detected in uncoated grafts. A cellular lining (neointima) was evident in all samples; however, the thickness of the neointima was not sufficient to decrease the luminal diam. No thrombus formation was obsd.
- IC ICM A61L027-16
ICS A61L027-56; A61L031-04
- CC 63-7 (Pharmaceuticals)
- IT **Polyamines**
RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(acrylic; protein-based endovascular graft coatings for promotion of thrombus formation)
- IT Acrylic polymers, biological studies
RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(polyamine-; protein-based endovascular graft coatings for promotion of thrombus formation)
- IT **Crosslinking**
Hemostatics
Immobilization, biochemical
Thrombus
(protein-based endovascular graft coatings for promotion of thrombus formation)
- IT 7173-54-8, Tridodecylmethylammonium chloride 9002-98-6, Polyethylenimine 9012-76-4, Chitosan 25038-59-9, Polyethylene terephthalate, biological studies 25104-18-1, Polylysine 38000-06-5, Polylysine
RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(protein-based endovascular graft coatings for promotion of thrombus formation)
- IT 60-32-2, .epsilon.-Aminocaproic acid 6066-82-6, N-Hydroxysuccinimide 27458-06-6, Benzoylbenzoic acid
RL: RCT (Reactant); RACT (Reactant or reagent)
(protein-based endovascular graft coatings for promotion of thrombus formation)
- IT 9012-76-4, Chitosan
RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(protein-based endovascular graft coatings for promotion of thrombus formation)

RN 9012-76-4 HCAPLUS
CN Chitosan (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L51 ANSWER 6 OF 17 HCAPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 2001:598045 HCAPLUS

DOCUMENT NUMBER: 135:182285

TITLE: Water-insoluble gels of hyaluronic acid
crosslinked with bifunctional L-amino acids or
L-amino esters or mixtures thereof

INVENTOR(S): Fratini, Luigi; Meldoli, Maurizio

PATENT ASSIGNEE(S): S.F.I.R. Societa' Fondiaria Industriale Romagnola
S.P.A., Italy

SOURCE: PCT Int. Appl., 14 pp.
CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2001058961	A1	20010816	WO 2001-EP1239	20010206
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				

PRIORITY APPLN. INFO.: IT 2000-FI20 A 20000208

AB The gels useful for cosmetics and pharmaceuticals are prepd., e.g., by adjusting a soln. of 1 g hyaluronic acid Na salt in 80 mL water to pH 5 with 0.75M HCl, adding 0.58 g N-3-dimethylaminopropylethylcarbodiimide hydrochloride (activator) and 0.44 g L-lysine, dialyzing the reaction mixt. after 2 h and addn. of 80 mL 1M NaCl soln. using water, pptg. with acetone, dissolving in water and freeze drying.

IC ICM C08B037-08

ICS A61K009-36

CC 44-5 (Industrial Carbohydrates)

Section cross-reference(s): 62, 63

ST hyaluronic acid amino acid **crosslinking** water insoluble gel
manuf; lysine dimethylaminopropylethylcarbodiimide hydrochloride
crosslinking hyaluronic acid

IT Amino acids, uses

RL: MOA (Modifier or additive use); USES (Uses)
(**crosslinkers**; water-insol. gels of hyaluronic acid
crosslinked with bifunctional L-amino acids or L-amino esters
or mixts. thereof)

IT Cosmetics

Drug delivery systems

(gels; water-insol. gels of hyaluronic acid **crosslinked** with
bifunctional L-amino acids or L-amino esters or mixts. thereof)

IT **Crosslinking** agents

(water-insol. gels of hyaluronic acid **crosslinked** with
bifunctional L-amino acids or L-amino esters or mixts. thereof)

IT 14338-32-0 25952-53-8, [3-(dimethylamino)propyl]ethylcarbodiimide
hydrochloride

RL: CAT (Catalyst use); USES (Uses)
 (activator; water-insol. gels of hyaluronic acid **crosslinked**
 with bifunctional L-amino acids or L-amino esters or mixts. thereof)

IT 354764-88-8P 354764-89-9P 354764-91-3P
 354764-92-4P 354764-93-5P 354764-94-6P
 354764-95-7P

RL: BUU (Biological use, unclassified); IMF (Industrial manufacture); THU
 (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES
 (Uses)

(water-insol. gels of hyaluronic acid **crosslinked** with
 bifunctional L-amino acids or L-amino esters or mixts. thereof)

IT 354764-88-8P 354764-89-9P 354764-91-3P
 354764-92-4P 354764-93-5P 354764-94-6P
 354764-95-7P

RL: BUU (Biological use, unclassified); IMF (Industrial manufacture); THU
 (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES
 (Uses)

(water-insol. gels of hyaluronic acid **crosslinked** with
 bifunctional L-amino acids or L-amino esters or mixts. thereof)

RN 354764-88-8 HCAPLUS

CN L-Lysine, polymer with hyaluronic acid sodium salt (9CI) (CA INDEX NAME)

CM 1

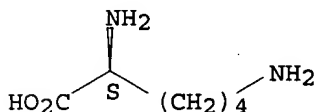
CRN 9067-32-7
 CMF Unspecified
 CCI PMS, MAN

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

CM 2

CRN 56-87-1
 CMF C6 H14 N2 O2

Absolute stereochemistry.



RN 354764-89-9 HCAPLUS

CN L-Lysine, ethyl ester, dihydrochloride, polymer with hyaluronic acid
 sodium salt (9CI) (CA INDEX NAME)

CM 1

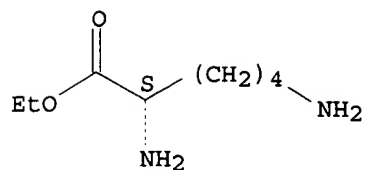
CRN 9067-32-7
 CMF Unspecified
 CCI PMS, MAN

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

CM 2

CRN 3844-53-9
 CMF C8 H18 N2 O2 . 2 Cl H

Absolute stereochemistry.



O2 HCl

RN 354764-91-3 HCAPLUS

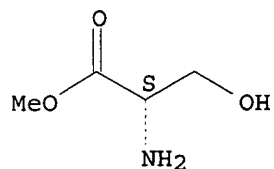
CN L-Serine, methyl ester, dihydrochloride, polymer with hyaluronic acid sodium salt (9CI) (CA INDEX NAME)

CM 1

CRN 354764-90-2

CMF C4 H9 N O3 . 2 Cl H

Absolute stereochemistry.



O2 HCl

CM 2

CRN 9067-32-7

CMF Unspecified

CCI PMS, MAN

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

RN 354764-92-4 HCAPLUS

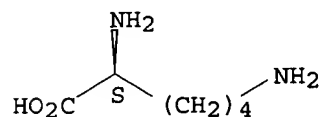
CN L-Lysine, polymer with N,N,N-tributyl-1-butanaminium hyaluronate (9CI) (CA INDEX NAME)

CM 1

CRN 56-87-1

CMF C6 H14 N2 O2

Absolute stereochemistry.



CM 2

CRN 111677-24-8
CMF C16 H36 N . x Unspecified

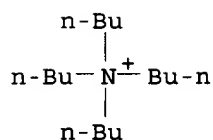
CM 3

CRN 54597-23-8
CMF Unspecified
CCI MAN

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

CM 4

CRN 10549-76-5
CMF C16 H36 N

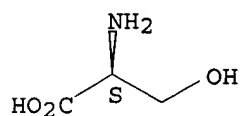


RN 354764-93-5 HCAPLUS
CN L-Serine, polymer with N,N,N-tributyl-1-butanaminium hyaluronate (9CI)
(CA INDEX NAME)

CM 1

CRN 56-45-1
CMF C3 H7 N O3

Absolute stereochemistry.



CM 2

CRN 111677-24-8
CMF C16 H36 N . x Unspecified

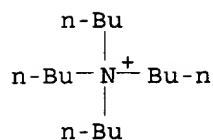
CM 3

CRN 54597-23-8
CMF Unspecified
CCI MAN

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

CM 4

CRN 10549-76-5
CMF C16 H36 N



RN 354764-94-6 HCAPLUS
CN L-Lysine, polymer with hyaluronic acid and L-serine (9CI) (CA INDEX NAME)

CM 1

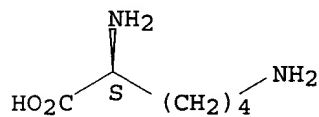
CRN 9004-61-9
CMF Unspecified
CCI PMS, MAN

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

CM 2

CRN 56-87-1
CMF C6 H14 N2 O2

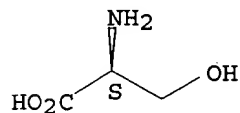
Absolute stereochemistry.



CM 3

CRN 56-45-1
CMF C3 H7 N O3

Absolute stereochemistry.

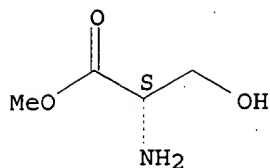


RN 354764-95-7 HCAPLUS
CN L-Lysine, ethyl ester, dihydrochloride, polymer with hyaluronic acid and L-serine methyl ester dihydrochloride (9CI) (CA INDEX NAME)

CM 1

CRN 354764-90-2
CMF C4 H9 N O3 . 2 Cl H

Absolute stereochemistry.



O2 HCl

CM 2

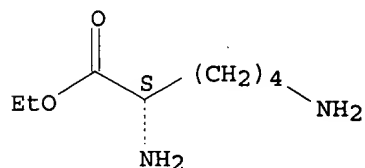
CRN 9004-61-9
 CMF Unspecified
 CCI PMS, MAN

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

CM 3

CRN 3844-53-9
 CMF C8 H18 N2 O2 . 2 Cl H

Absolute stereochemistry.



O2 HCl

REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS
 RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L51 ANSWER 7 OF 17 HCAPLUS COPYRIGHT 2002 ACS
 ACCESSION NUMBER: 2000:335448 HCAPLUS
 DOCUMENT NUMBER: 132:336032
 TITLE: **Crosslinked** hyaluronic acids and medical
 uses thereof
 INVENTOR(S): Barbucci, Rolando; Rapuoli, Roberto
 PATENT ASSIGNEE(S): Aquisitio S.p.A., Italy
 SOURCE: PCT Int. Appl., 22 pp.
 CODEN: PIXXD2
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2000027887	A2	20000518	WO 1999-EP8481	19991108
WO 2000027887	A3	20001116		

W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU,

CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
 RW: GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG

IT 1303735 B1 20010223 IT 1998-MI2440 19981111

IT 98MI2440 A1 20000511

BR 9915235 A 20010724 BR 1999-15235 19991108

EP 1144459 A2 20011017 EP 1999-968778 19991108

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO

JP 2002529550 T2 20020910 JP 2000-581064 19991108

NO 2001002315 A 20010706 NO 2001-2315 20010510

PRIORITY APPLN. INFO.:

IT 1998-MI2440 A 19981111

WO 1999-EP8481 W 19991108

OTHER SOURCE(S): MARPAT 132:336032

AB Crosslinked hyaluronic acids obtained by reaction of activated carboxylic groups of native linear hyaluronic acid, of extractive or biosynthetic source, with a polyamine, particularly a linear alkyl diamine, are useful as substitutes for synovial fluid or vitreous humor, controlled-release matrixes for medicaments, healing and antiadhesive agents, moisturizers, and for the prepn. of vascular prosthesis, biohybrid organs, healing devices, ophthalmic and otol. compns., prosthesis, implants and medical devices. The crosslinking degree can be adjusted by changing the amt. of carboxy-activating agent and is reproducible. The crosslinked hyaluronic acids can optionally be sulfated or hemisuccinylated. Both crosslinked hyaluronic acids and their corresponding sulfate esters lack platelet activation and aggregation. Thus, lyophilized tributylammonium hyaluronate was dissolved in anhyd. DMF, activated with 6×10^{-4} mol chloromethylpyridylium iodide, crosslinked with 0.023 mol 1,6-diaminohexane in the presence of triethylamine, and lyophilized, giving crosslinking degree 50% and swelling degree in water 8.000, water vaporization enthalpy 327 J/g, and water content 16 wt.%.

IC ICM C08B037-00

CC 44-5 (Industrial Carbohydrates)

Section cross-reference(s): 62, 63

ST hyaluronic acid ester **crosslinked** medical use; amine

crosslinked tributylammonium hyaluronate prepn

IT Blood vessel

(artificial; **crosslinked** hyaluronic acids and medical uses thereof)

IT Organ, animal

(artificial; **crosslinked** hyaluronic acids and use as)

IT Drug delivery systems

(controlled-release; **crosslinked** hyaluronic acids and medical uses thereof)

IT Cosmetics

Medical goods

(**crosslinked** hyaluronic acids and medical uses thereof)

IT Prosthetic materials and Prosthetics

Synovial fluid

(**crosslinked** hyaluronic acids and use as)

IT Prosthetic materials and Prosthetics

(implants; **crosslinked** hyaluronic acids and use as)

IT Drug delivery systems

(ophthalmic; **crosslinked** hyaluronic acids and use as)

IT Drug delivery systems

(solns., ear; **crosslinked** hyaluronic acids and use as)

IT Eye

(vitreous humor; **crosslinked** hyaluronic acids and use as)

IT 267882-31-5
 RL: NUU (Other use, unclassified); USES (Uses)
 (activator; for **crosslinking** hyaluronic acids for medical
 uses)

IT 267882-30-4DP, sulfated 267882-30-4P
 267882-32-6P 267882-33-7P 267882-34-8P
 RL: BUU (Biological use, unclassified); IMF (Industrial manufacture); BIOL
 (Biological study); PREP (Preparation); USES (Uses)
 (**crosslinked** hyaluronic acids and medical uses thereof)

IT 267882-30-4DP, sulfated 267882-30-4P
 267882-32-6P 267882-33-7P 267882-34-8P
 RL: BUU (Biological use, unclassified); IMF (Industrial manufacture); BIOL
 (Biological study); PREP (Preparation); USES (Uses)
 (**crosslinked** hyaluronic acids and medical uses thereof)

RN 267882-30-4 HCAPLUS
 CN Hyaluronic acid, ion(neg.), N,N,N-tributyl-1-butanaminium, polymer with
 1,3-propanediamine (9CI) (CA INDEX NAME)

CM 1

CRN 109-76-2
 CMF C3 H10 N2



CM 2

CRN 111677-24-8
 CMF C16 H36 N . x Unspecified

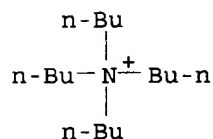
CM 3

CRN 54597-23-8
 CMF Unspecified
 CCI MAN

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

CM 4

CRN 10549-76-5
 CMF C16 H36 N



RN 267882-30-4 HCAPLUS
 CN Hyaluronic acid, ion(neg.), N,N,N-tributyl-1-butanaminium, polymer with
 1,3-propanediamine (9CI) (CA INDEX NAME)

CM 1

CRN 109-76-2
 CMF C3 H10 N2



CM 2

CRN 111677-24-8

CMF C16 H36 N . x Unspecified

CM 3

CRN 54597-23-8

CMF Unspecified

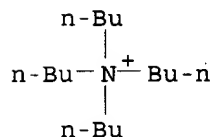
CCI MAN

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

CM 4

CRN 10549-76-5

CMF C16 H36 N



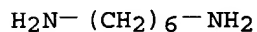
RN 267882-32-6 HCAPLUS

CN Hyaluronic acid, ion (neg.), N,N,N-tributyl-1-butanaminium, polymer with 1,6-hexanediamine (9CI) (CA INDEX NAME)

CM 1

CRN 124-09-4

CMF C6 H16 N2



CM 2

CRN 111677-24-8

CMF C16 H36 N . x Unspecified

CM 3

CRN 54597-23-8

CMF Unspecified

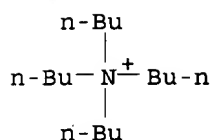
CCI MAN

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

CM 4

CRN 10549-76-5

CMF C16 H36 N



RN 267882-33-7 HCAPLUS

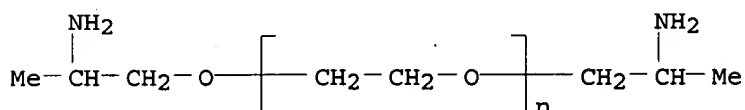
CN Hyaluronic acid, ion (neg.), N,N,N-tributyl-1-butanaminium, polymer with
 .alpha.-(2-aminopropyl)-.omega.-(2-aminopropoxy)poly(oxy-1,2-ethanediyl)
 (9CI) (CA INDEX NAME)

CM 1

CRN 70939-81-0

CMF (C2 H4 O)_n C6 H16 N2 O

CCI PMS



CM 2

CRN 111677-24-8

CMF C16 H36 N . x Unspecified

CM 3

CRN 54597-23-8

CMF Unspecified

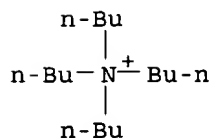
CCI MAN

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

CM 4

CRN 10549-76-5

CMF C16 H36 N



RN 267882-34-8 HCAPLUS

CN Hyaluronic acid, ion (neg.), N,N,N-tributyl-1-butanaminium, polymer with
 1,3-propanediamine, copper salt (9CI) (CA INDEX NAME)

CM 1

CRN 267882-30-4

CMF (C16 H36 N . C3 H10 N2 . x Unspecified)x

CCI PMS

CM 2

CRN 109-76-2
CMF C3 H10 N2

CM 3

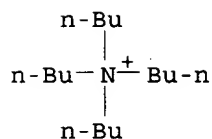
CRN 111677-24-8
CMF C16 H36 N . x Unspecified

CM 4

CRN 54597-23-8
CMF Unspecified
CCI MAN

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

CM 5

CRN 10549-76-5
CMF C16 H36 N

L51 ANSWER 8 OF 17 HCAPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 2000:335447 HCAPLUS

DOCUMENT NUMBER: 132:323187

TITLE: Preparation of **crosslinked**
carboxy-containing polysaccharides having controlled
crosslinking degree and high reproducibility

INVENTOR(S): Barbucci, Rolando; Sportoletti, Giancarlo

PATENT ASSIGNEE(S): Aquisitio S.p.A., Italy

SOURCE: PCT Int. Appl., 27 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2000027886	A1	20000518	WO 1999-EP8480	19991109
W:	AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM			
RW:	GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF,			

CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG

IT 1303738	B1	20010223	IT 1998-MI2443	19981111
IT 98MI2443	A1	20000511		
BR 9915238	A	20010724	BR 1999-15238	19991109
EP 1137670	A1	20011004	EP 1999-971819	19991109

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,
IE, SI, LT, LV, FI, RO

JP 2002529549	T2	20020910	JP 2000-581063	19991109
NO 2001002316	A	20010706	NO 2001-2316	20010510

PRIORITY APPLN. INFO.: IT 1998-MI2443 A 19981111
WO 1999-EP8480 W 19991109

OTHER SOURCE(S): MARPAT 132:323187

AB The crosslinked carboxy-contg. polysaccharides, useful for medical, pharmaceutical and cosmetic fields, is prepd. by activating **carboxy groups** of a polysaccharide (e.g., CM-cellulose tetrabutylammonium salt) in anhyd. aprotic solvent (e.g., DMF) and then the reacting the activated polysaccharide with a polyamine (e.g., 1,3-diaminopropane). The crosslinked polysaccharide may be subjected to sulfation of the five hydroxy groups.

IC ICM C08B015-00
ICS C08B037-04; C08B037-08

CC 43-3 (Cellulose, Lignin, Paper, and Other Wood Products)
Section cross-reference(s): 62, 63

ST carboxy polysaccharide **crosslinked** prepn reproducibility
pharmaceutical; **polyamine crosslinker** carboxy
polysaccharide cosmetic

IT Polysaccharides, biological studies
RL: BUU (Biological use, unclassified); IMF (Industrial manufacture); BIOL (Biological study); PREP (Preparation); USES (Uses)
(carboxy-contg., **crosslinked**; prepn. of **crosslinked** carboxy-contg. polysaccharides having controlled **crosslinking** degree and high reproducibility)

IT Catalysts
Crosslinking agents
(prepn. of **crosslinked** carboxy-contg. polysaccharides having controlled **crosslinking** degree and high reproducibility)

IT Cosmetics
Drugs
Medical goods
(prepn. of **crosslinked** carboxy-contg. polysaccharides having controlled **crosslinking** degree and high reproducibility for)

IT 530-62-1 658-78-6, p-Nitrophenyl trifluoroacetate
6066-82-6, N-Hydroxysuccinimide 37306-44-8D, Triazole,
Carbonyl derivs. 71849-58-6, Hydroxybenzotriazole
267241-51-0
RL: CAT (Catalyst use); USES (Uses)
(activator; prepn. of **crosslinked** carboxy-contg. polysaccharides having controlled **crosslinking** degree and high reproducibility)

IT 109-76-2, 1,3-Diaminopropane 124-09-4, 1,6-Hexanediamine, reactions
70939-81-0
RL: RCT (Reactant); RACT (Reactant or reagent)
(**crosslinkers**; prepn. of **crosslinked** carboxy-contg. polysaccharides having controlled **crosslinking** degree and high reproducibility)

IT 9005-32-7DP, Alginate acid, activated, **crosslinked**, and sulfated 152842-67-6DP, activated, **crosslinked**, and sulfated
RL: BUU (Biological use, unclassified); IMF (Industrial manufacture); BIOL (Biological study); PREP (Preparation); USES (Uses)
(prepn. of **crosslinked** carboxy-contg. polysaccharides having controlled **crosslinking** degree and high reproducibility)

IT 9003-01-4, Polyacrylic acid 9004-32-4, CM-cellulose

9004-61-9, Hyaluronic acid 9005-49-6, Heparin,
 reactions 9007-28-7, Chondroitin sulfate
 9012-76-4, Chitosan 9032-53-5, Cellulosic acid
 9050-30-0, Heparan sulfate 9057-06-1,
 Carboxymethylstarch 9067-32-7, Hyaluronic acid, sodium salt
 24967-94-0, Dermatan sulfate
 72270-19-0, Carboxymethyl glucan 102199-00-8
 111677-24-8 119495-91-9 152842-67-6 267239-76-9

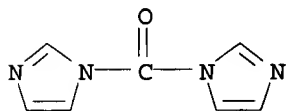
RL: RCT (Reactant); RACT (Reactant or reagent)
 (prepn. of **crosslinked** carboxy-contg. polysaccharides having
 controlled **crosslinking** degree and high reproducibility)

IT 530-62-1 658-78-6, p-Nitrophenyl trifluoroacetate
 71849-58-6, Hydroxybenzotriazole

RL: CAT (Catalyst use); USES (Uses)
 (activator; prepn. of **crosslinked** carboxy-contg.
 polysaccharides having controlled **crosslinking** degree and
 high reproducibility)

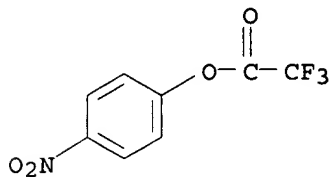
RN 530-62-1 HCAPLUS

CN 1H-Imidazole, 1,1'-carbonylbis- (9CI) (CA INDEX NAME)



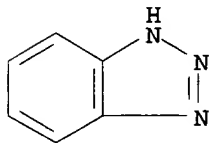
RN 658-78-6 HCAPLUS

CN Acetic acid, trifluoro-, 4-nitrophenyl ester (9CI) (CA INDEX NAME)



RN 71849-58-6 HCAPLUS

CN 1H-Benzotriazole, hydroxy- (9CI) (CA INDEX NAME)



D1-OH

IT 9005-32-7DP, Alginic acid, activated, **crosslinked**, and
 sulfated

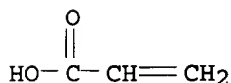
RL: BUU (Biological use, unclassified); IMF (Industrial manufacture); BIOL
 (Biological study); PREP (Preparation); USES (Uses)
 (prepn. of **crosslinked** carboxy-contg. polysaccharides having
 controlled **crosslinking** degree and high reproducibility)

RN 9005-32-7 HCAPLUS

CN Alginic acid (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

IT 9003-01-4, Polyacrylic acid 9004-61-9, Hyaluronic acid
 9005-49-6, Heparin, reactions 9007-28-7,
 Chondroitin sulfate 9012-76-4,
 Chitosan 9032-53-5, Cellulosic acid 9057-06-1,
 Carboxymethylstarch 24967-94-0, Dermatan
 sulfate 72270-19-0, Carboxymethyl
 glucan 267239-76-9
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (prepn. of **crosslinked** carboxy-contg. polysaccharides having
 controlled **crosslinking** degree and high reproducibility)
 RN 9003-01-4 HCAPLUS
 CN 2-Propenoic acid, homopolymer (9CI) (CA INDEX NAME)
 CM 1
 CRN 79-10-7
 CMF C3 H4 O2



RN 9004-61-9 HCAPLUS
 CN Hyaluronic acid (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

RN 9005-49-6 HCAPLUS
 CN Heparin (8CI, 9CI) (CA INDEX NAME)

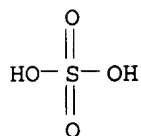
*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

RN 9007-28-7 HCAPLUS
 CN Chondroitin, hydrogen sulfate (9CI) (CA INDEX NAME)

CM 1
 CRN 9007-27-6
 CMF Unspecified
 CCI PMS, MAN

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

CM 2
 CRN 7664-93-9
 CMF H2 O4 S



RN 9012-76-4 HCAPLUS
 CN Chitosan (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

RN 9032-53-5 HCAPLUS

CN Cellulose, 6-carboxy (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

RN 9057-06-1 HCAPLUS

CN Starch, carboxymethyl ether (9CI) (CA INDEX NAME)

CM 1

CRN 9005-25-8

CMF Unspecified

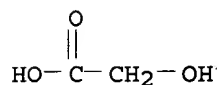
CCI MAN

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

CM 2

CRN 79-14-1

CMF C2 H4 O3



RN 24967-94-0 HCAPLUS

CN Dermatan, hydrogen sulfate (ester) (9CI) (CA INDEX NAME)

CM 1

CRN 75634-40-1

CMF Unspecified

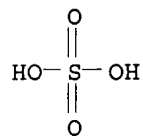
CCI MAN

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

CM 2

CRN 7664-93-9

CMF H2 O4 S



RN 72270-19-0 HCAPLUS

CN D-Glucan, carboxymethyl ether (9CI) (CA INDEX NAME)

CM 1

CRN 9012-72-0

CMF Unspecified

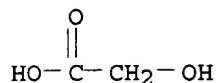
CCI PMS, MAN

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

CM 2

CRN 79-14-1

CMF C2 H4 O3



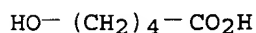
RN 267239-76-9 HCAPLUS

CN D-Glucan, 4-carboxybutyl ether (9CI) (CA INDEX NAME)

CM 1

CRN 13392-69-3

CMF C5 H10 O3



CM 2

CRN 9012-72-0

CMF Unspecified

CCI PMS, MAN

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L51 ANSWER 9 OF 17 HCAPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 1999:317185 HCAPLUS

DOCUMENT NUMBER: 130:332899

TITLE: Use of aliphatic polyamines for reducing
oxalateINVENTOR(S): Holmes-Farley, Stephen Randall; Mandeville, W. Harry,
III

PATENT ASSIGNEE(S): Geltex Pharmaceuticals, Inc., USA

SOURCE: PCT Int. Appl., 42 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9922744	A1	19990514	WO 1998-US22606	19981026
W:	AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM			
RW:	GH, GM, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG			
US 5985938	A	19991116	US 1997-964956	19971105
ZA 9809671	A	19990428	ZA 1998-9671	19981023
AU 9913647	A1	19990524	AU 1999-13647	19981026
EP 1044008	A1	20001018	EP 1998-957371	19981026
R:	BE, DE, FR, GB, LU, NL			
JP 2001521902	T2	20011113	JP 2000-518676	19981026

162786-36-9DP, Divinylbenzene-methacryloyl chloride copolymer, agmatine sulfate reaction products 162786-36-9DP, Divinylbenzene-methacryloyl chloride copolymer, amine reaction products 198343-02-1P 198343-03-2P 198343-04-3P 224313-15-9P 224313-20-6DP, reaction products with agmatine 224313-23-9P

RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)

(polyamines, and prepn. thereof, for reducing oxalate)

IT 107-11-9D, Allylamine, derivs., polymers 124-02-7D, Diallylamine, derivs., polymers 593-67-9D, Vinylamine, derivs., polymers 9003-01-4 9003-01-4D, derivs. 9003-05-8 9003-05-8D, derivs. 26336-38-9 26336-38-9D, derivs. 30551-89-4 30551-89-4D, derivs. 31245-56-4 31245-56-4D, derivs. 51382-06-0 51382-06-0D, crosslinked 52757-95-6 138807-57-5 138807-57-5D, derivs. 157475-96-2 157475-96-2D, crosslinked 198342-67-5 224313-04-6 224313-04-6D, crosslinked

RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)

(polyamines, and prepn. thereof, for reducing oxalate)

IT 144-62-7, Ethanedioic acid, biological studies
RL: BPR (Biological process); BSU (Biological study, unclassified); REM (Removal or disposal); BIOL (Biological study); PROC (Process)

(polyamines, and prepn. thereof, for reducing oxalate)

IT 5202-78-8P, Vinylacetamide 5335-91-1P, Ethylidenebisacetamide 9017-37-2P, Methyl methacrylate-divinylbenzene copolymer 147898-29-1P 162786-36-9P, Divinylbenzene-methacryloyl chloride copolymer 224313-18-2P 224313-20-6P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(prepn. and reaction; polyamines, and prepn. thereof, for reducing oxalate)

IT 60-35-5, Acetamide, reactions 75-07-0, Acetaldehyde, reactions 104-78-9 107-15-3, Ethylenediamine, reactions 111-40-0 306-60-5, Agmatine 814-68-6, Acryloyl chloride 2482-00-0, Agmatine sulfate 2582-30-1, Aminoguanidine bicarbonate 4097-89-6, Tris(2-aminoethyl)amine 6066-82-6, N-Hydroxysuccinimide

RL: RCT (Reactant); RACT (Reactant or reagent)

(reaction; polyamines, and prepn. thereof, for reducing oxalate)

IT 9003-01-4 9003-01-4D, derivs.

RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)

(polyamines, and prepn. thereof, for reducing oxalate)

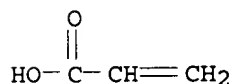
RN 9003-01-4 HCAPLUS

CN 2-Propenoic acid, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 79-10-7

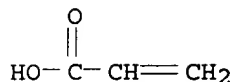
CMF C3 H4 O2



RN 9003-01-4 HCAPLUS

CN 2-Propenoic acid, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 79-10-7
CMF C3 H4 O2

REFERENCE COUNT: 12 THERE ARE 12 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L51 ANSWER 10 OF 17 HCAPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 1998:175765 HCAPLUS

DOCUMENT NUMBER: 128:193304

TITLE: A formaldehyde-free accelerated curable aqueous composition for bonding glass-fiber, heat-resistant nonwoven fabrics

INVENTOR(S): Arkens, Charles Thomas; Egold, Scott Lind

PATENT ASSIGNEE(S): Rohm and Haas Co., USA

SOURCE: Eur. Pat. Appl., 11 pp.

CODEN: EPXXDW

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 826710	A2	19980304	EP 1997-306228	19970815
EP 826710	A3	19990127		
EP 826710	B1	20010926		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
CA 2212470	AA	19980221	CA 1997-2212470	19970807
AU 9733193	A1	19980226	AU 1997-33193	19970807
AU 742125	B2	20011220		
ES 2164303	T3	20020216	ES 1997-306228	19970815
CN 1174265	A	19980225	CN 1997-117473	19970820
BR 9704471	A	19981215	BR 1997-4471	19970820
TW 436511	B	20010528	TW 1997-86111930	19970820
JP 10204302	A2	19980804	JP 1997-239159	19970821

PRIORITY APPLN. INFO.: US 1996-24283P P 19960821

AB A formaldehyde-free curable aq. compn. comprises: (a) a polyacid comprising at least two **carboxylic acid groups**, anhydride **groups**, or salts of the polyacid thereof; (b) an active hydrogen compd. contg. at least two active hydrogen groups selected from the group consisting of hydroxyl, primary amino, secondary amino, and mixts. thereof; and (c) a fluoroborate accelerator; wherein the ratio of the no. of equiv. of said **carboxylic acid groups**, anhydride **groups**, or salts thereof to the no. of equiv. of said hydroxyl groups is from 1/0.01 to about 1/3, and wherein said **carboxylic acid groups**, anhydride **groups**, or salts thereof are neutralized to an extent of less than 35% with a nonvolatile base.

IC ICM C08G063-00

ICS C08G063-84; C08F020-04; C08F022-02; D04H001-64

CC 37-6 (Plastics Manufacture and Processing)

ST formaldehyde free binder glass nonwoven fabric; heat resistant glass nonwoven fabric binder; fluoroborate **crosslinking** catalyst polyacid binder; **polyamine crosslinker** polyacid

binder; polyol **crosslinker** polyacid binder; polyacid binder
glass nonwoven fabric

IT Binders
(active hydrogen compd.-**crosslinked** polyacids;
formaldehyde-free accelerated curable aq. compn. for bonding
glass-fiber, heat-resistant nonwoven fabrics)

IT **Polyamines**
RL: MOA (Modifier or additive use); USES (Uses)
(**crosslinker**; formaldehyde-free accelerated curable aq.
compn. for bonding glass-fiber, heat-resistant nonwoven fabrics)

IT **Crosslinking catalysts**
(fluoroborates; formaldehyde-free accelerated curable aq. compn. for
bonding glass-fiber, heat-resistant nonwoven fabrics)

IT Amines, uses
RL: MOA (Modifier or additive use); USES (Uses)
(**polyamines**, nonpolymeric, **crosslinker**;
formaldehyde-free accelerated curable aq. compn. for bonding
glass-fiber, heat-resistant nonwoven fabrics)

IT Alcohols, uses
RL: MOA (Modifier or additive use); USES (Uses)
(polyhydric, **crosslinker**; formaldehyde-free accelerated
curable aq. compn. for bonding glass-fiber, heat-resistant nonwoven
fabrics)

IT **Crosslinking agents**
(polyols and **polyamines**; formaldehyde-free accelerated
curable aq. compn. for bonding glass-fiber, heat-resistant nonwoven
fabrics)

IT 102-71-6, uses
RL: MOA (Modifier or additive use); USES (Uses)
(**crosslinking** agent; formaldehyde-free accelerated curable
aq. compn. for bonding glass-fiber, heat-resistant nonwoven fabrics)

IT 13755-29-8, Sodium fluoroborate 16872-11-0
RL: CAT (Catalyst use); USES (Uses)
(**crosslinking** catalyst; formaldehyde-free accelerated curable
aq. compn. for bonding glass-fiber, heat-resistant nonwoven fabrics)

IT **9003-01-4**
RL: POF (Polymer in formulation); USES (Uses)
(formaldehyde-free accelerated curable aq. compn. for bonding
glass-fiber, heat-resistant nonwoven fabrics)

IT **9003-01-4**
RL: POF (Polymer in formulation); USES (Uses)
(formaldehyde-free accelerated curable aq. compn. for bonding
glass-fiber, heat-resistant nonwoven fabrics)

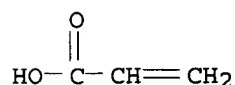
RN 9003-01-4 HCAPLUS

CN 2-Propenoic acid, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 79-10-7

CMF C3 H4 O2



L51 ANSWER 11 OF 17 HCAPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 1997:443310 HCAPLUS

DOCUMENT NUMBER: 127:52465

TITLE: Photocured **crosslinked** hyaluronic acid gel
and method of preparation thereof

INVENTOR(S): Waki, Michinori; Miyamoto, Kenji
 PATENT ASSIGNEE(S): Seikagaku Corporation, Japan; Waki, Michinori;
 Miyamoto, Kenji
 SOURCE: PCT Int. Appl., 74 pp.
 CODEN: PIXXD2
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9718244	A1	19970522	WO 1996-JP3349	19961114
W: AU, CA, CN, HU, JP, KR, NO, RU, US				
RW: AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
CA 2237192	AA	19970522	CA 1996-2237192	19961114
AU 9675872	A1	19970605	AU 1996-75872	19961114
AU 722250	B2	20000727		
EP 861270	A1	19980902	EP 1996-938473	19961114
EP 861270	B1	20020724		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, NL, SE, PT, FI				
CN 1207744	A	19990210	CN 1996-199650	19961114
JP 11512778	T2	19991102	JP 1996-518745	19961114
AT 221086	E	20020815	AT 1996-938473	19961114
US 6031017	A	20000229	US 1998-68227	19980505
NO 9802212	A	19980714	NO 1998-2212	19980514

PRIORITY APPLN. INFO.: JP 1995-319825 A 19951115
 WO 1996-JP3349 W 19961114

AB A photocured crosslinked hyaluronic acid gel, which has a storage modulus (G') of 50-1500 Pa, a loss modulus (G'') of 10-300 Pa, and a tangent delta (G''/G') of 0.1-0.8 in dynamic viscoelasticity at a frequency of 10 Hz, and which is a hydrogel obtained by irradiation with UV rays of a photoreactive hyaluronic acid deriv. in which a photoreactive crosslinking group is chem. linked to a functional group of the hyaluronic acid and crosslinking of mutual photoreactive crosslinking groups, methods for prepg. the same, and uses thereof as biomedical materials are disclosed. A such hyaluronic acid (I) deriv. was prepd. from I and 6-aminohexyl cinnamate HCl-salt.

IC ICM C08B037-08

ICS A61L027-00

CC 44-5 (Industrial Carbohydrates)
 Section cross-reference(s): 63

IT 191283-04-2P

RL: IMF (Industrial manufacture); PRP (Properties); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
 (photocurable hyaluronic acid gel and method of prepn. thereof)

IT 191283-04-2P

RL: IMF (Industrial manufacture); PRP (Properties); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
 (photocurable hyaluronic acid gel and method of prepn. thereof)

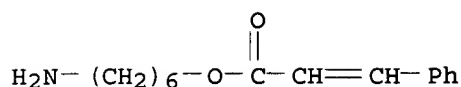
RN 191283-04-2 HCAPLUS

CN Hyaluronic acid, polymer with 6-aminohexyl 3-phenyl-2-propenoate hydrochloride (9CI) (CA INDEX NAME)

CM 1

CRN 179167-38-5

CMF C15 H21 N O2 . Cl H



● HCl

CM 2

CRN 9004-61-9
 CMF Unspecified
 CCI PMS, MAN

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

L51 ANSWER 12 OF 17 HCAPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 1997:302811 HCAPLUS

DOCUMENT NUMBER: 126:279255

TITLE: Physiologically compatible and water-insoluble
 hydrazine or hydrazide compound-**crosslinked**
 hyaluronic acid gels and their manufacture

INVENTOR(S): Kyota, Juko; Ueno, Norio

PATENT ASSIGNEE(S): Shiseido Co Ltd, Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 12 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

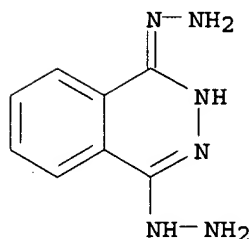
	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
	JP 09059303	A2	19970304	JP 1995-234598	19950822
AB	The title gels useful for making contact lenses, prosthetic parts, etc. (no data), are condensation crosslinked with specified di(or bi)hydrazine and di(or bi)hydrazide compds. Thus, a crosslinked product was prepd. by using 1,4-dihydrazinophthalazine as crosslinker and a hyaluronic acid.				
IC	ICM C08B037-08				
	ICS A61L027-00; A61L031-00				
CC	44-5 (Industrial Carbohydrates)				
	Section cross-reference(s): 63				
ST	dihydrazide hyaluronic acid crosslinking gel; dihydrazine hyaluronic acid crosslinking gel; hydrazide hyaluronic acid crosslinking gel; physiol compatible gel hydrazine crosslinked hyaluronate; dihydrazinophthalazine crosslinked hyaluronate gel				
IT	Hydrazides				
	RL: MOA (Modifier or additive use); USES (Uses) (dihydrazides, crosslinkers ; for making physiol. compatible and water-insol. hydrazine or hydrazide compd.- crosslinked hyaluronic acid gels)				
IT	Biocompatibility (physiol. compatible and water-insol. hydrazine or hydrazide compd.- crosslinked hyaluronic acid gels and manuf.)				
IT	Gels RL: IMF (Industrial manufacture); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation) (physiol. compatible and water-insol. hydrazine or hydrazide compd.- crosslinked hyaluronic acid gels and manuf.)				

IT 484-23-1, 1,4-Dihydrazinophthalazine 1071-93-8, Adipic dihydrazide
 2200-68-2 4146-43-4, Succinic dihydrazide 14052-65-4 20247-84-1,
 Suberic acid dihydrazide 23592-50-9 188968-23-2 188968-24-3
 RL: MOA (Modifier or additive use); USES (Uses)
 (crosslinkers; for making physiol. compatible and
 water-insol. hydrazine or hydrazide compd.-crosslinked
 hyaluronic acid gels)
 IT 188968-15-2P, Hyaluronic acid-1,4-dihydrazinophthalazine copolymer
 188968-25-4P, Adipic dihydrazide-hyaluronic acid copolymer
 RL: IMF (Industrial manufacture); PRP (Properties); SPN (Synthetic
 preparation); PREP (Preparation)
 (physiol. compatible and water-insol. hydrazine or hydrazide compd.-
 crosslinked hyaluronic acid gels and manuf.)
 IT 188968-15-2P, Hyaluronic acid-1,4-dihydrazinophthalazine copolymer
 188968-25-4P, Adipic dihydrazide-hyaluronic acid copolymer
 RL: IMF (Industrial manufacture); PRP (Properties); SPN (Synthetic
 preparation); PREP (Preparation)
 (physiol. compatible and water-insol. hydrazine or hydrazide compd.-
 crosslinked hyaluronic acid gels and manuf.)
 RN 188968-15-2 HCAPLUS
 CN Hyaluronic acid, polymer with 2,3-dihydro-1,4-phthalazinedione dihydrazone
 (9CI) (CA INDEX NAME)

CM 1
 CRN 9004-61-9
 CMF Unspecified
 CCI PMS, MAN

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

CM 2
 CRN 484-23-1
 CMF C8 H10 N6



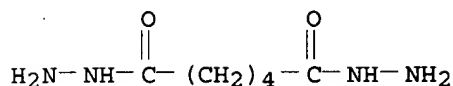
RN 188968-25-4 HCAPLUS
 CN Hyaluronic acid, polymer with hexanedioic acid dihydrazide (9CI) (CA
 INDEX NAME)

CM 1
 CRN 9004-61-9
 CMF Unspecified
 CCI PMS, MAN

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

CM 2
 CRN 1071-93-8

CMF C6 H14 N4 O2



L51 ANSWER 13 OF 17 HCAPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 1995:996581 HCAPLUS

DOCUMENT NUMBER: 124:89533

TITLE: Superabsorbent polymers and products therefrom

INVENTOR(S): Woodrum, Guy T.

PATENT ASSIGNEE(S): Hoechst Celanese Corp., USA

SOURCE: PCT Int. Appl., 51 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9527739	A1	19951019	WO 1995-US4428	19950410
W: CA, CN, JP, MX				
RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
CA 2187633	AA	19951019	CA 1995-2187633	19950410
EP 755413	A1	19970129	EP 1995-915640	19950410
R: DE, FR, GB				
CN 1148395	A	19970423	CN 1995-193071	19950410
JP 10500712	T2	19980120	JP 1995-526508	19950410
US 5597873	A	19970128	US 1995-450267	19950525
PRIORITY APPLN. INFO.:			US 1994-226160	19940411
			WO 1995-US4428	19950410

AB A superabsorbent compn. having improved fluid absorption properties is prepd. by surface crosslinking the polymn. product of a **carboxy** or carboxylate **group**-contg. monomer with a crosslinker soln. comprising water, C3-6 diol and a crosslinking compd. having .gtoreq.2 functional reactive **groups** with the **carboxy** or carboxylate **groups** of the polymn. product.

IC ICM C08F008-14

CC 38-3 (Plastics Fabrication and Uses)
Section cross-reference(s): 63

ST superabsorbent polymer diaper; starch acrylic acid graft polymer;
crosslinker superabsorbent polymer

IT **Crosslinking agents**
Diapers
(superabsorbent polymers and products with improved fluid absorption properties)

IT **Amines**, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(**poly-**, reaction products, with epichlorohydrin;
superabsorbent polymers and products with improved fluid absorption properties)

IT 106-89-8D, Epichlorohydrin, adducts with amine polymers 4206-61-5,
Diethylene glycol diglycidyl ether 172826-44-7, Kymene 736
172826-48-1, Reten 204LS
RL: RCT (Reactant); RACT (Reactant or reagent)
(**crosslinkers**; superabsorbent polymers and products with improved fluid absorption properties)

IT 9003-01-4, Polyacrylic acid
RL: TEM (Technical or engineered material use); USES (Uses)

(partially neutralized; superabsorbent polymers and products with improved fluid absorption properties)

IT 9003-01-4, Polyacrylic acid

RL: TEM (Technical or engineered material use); USES (Uses)

(partially neutralized; superabsorbent polymers and products with improved fluid absorption properties)

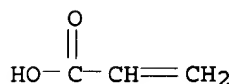
RN 9003-01-4 HCAPLUS

CN 2-Propenoic acid, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 79-10-7

CMF C3 H4 O2



L51 ANSWER 14 OF 17 HCAPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 1995:696062 HCAPLUS

DOCUMENT NUMBER: 123:86466

TITLE: Manufacture of physiologically compatible **crosslinked** hyaluronic acids and its mixture

INVENTOR(S): Ikada, Yoshito; Tabata, Yasuhiko; Oka, Takashige; Tomihata, Kenji

PATENT ASSIGNEE(S): Gunze Kk, Japan; Kaken Pharma Co Ltd

SOURCE: Jpn. Kokai Tokkyo Koho, 6 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
	JP 07102002	A2	19950418	JP 1993-245072	19930930
AB	Crosslinked hyaluronic acids with low soly. in water and useful as viscoelastic materials or gels for treatment of eye illness and arthritic joint are manufd. by crosslinking a hyaluronic acid with carbodiimide, e.g. 1-ethyl-3-(3-dimethylaminopropyl)carbodiimide hydrochloride, and optionally other diamine group-contg. amino acids or their esters and polyepoxy compds.				
IC	ICM C08B037-08				
	ICS A61K047-36				
ICA	A61K009-00				
CC	44-5 (Industrial Carbohydrates)				
	Section cross-reference(s): 63				
ST	carbodiimide crosslinking hyaluronic acid; pharmaceutical crosslinked hyaluronic acid; viscoelastic carbodiimide crosslinked hyaluronic acid; eye disease treatment crosslinked hyaluronate; arthritic joint treatment crosslinked hyaluronate				
IT	Arthritis				
	Pharmaceuticals				
	(manuf. of physiol. compatible crosslinked hyaluronic acids and mixt.)				
IT	Eye, disease				
	(treatment of; manuf. of physiol. compatible crosslinked hyaluronic acids and mixt.)				
IT	Gels				

(hydro-, manuf. of physiol. compatible **crosslinked** hyaluronic acids and mixt.)

IT 164466-33-5P 165324-65-2P 165324-66-3P
165324-67-4P
RL: IMF (Industrial manufacture); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(manuf. of physiol. compatible **crosslinked** hyaluronic acids and mixt.)

IT 26009-03-0, Poly(glycolic acid) 26124-68-5, Poly(glycolic acid)
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(manuf. of physiol. compatible **crosslinked** hyaluronic acids and mixt.)

IT 165324-65-2P 165324-66-3P 165324-67-4P
RL: IMF (Industrial manufacture); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(manuf. of physiol. compatible **crosslinked** hyaluronic acids and mixt.)

RN 165324-65-2 HCAPLUS
CN Hyaluronic acid, polymer with N'-(ethylcarbonimidoyl)-N,N-dimethyl-1,3-propanediamine monohydrochloride (9CI) (CA INDEX NAME)

CM 1

CRN 25952-53-8
CMF C8 H17 N3 . Cl H

Et-N=C=N-(CH₂)₃-NMe₂

○ HCl

CM 2

CRN 9004-61-9
CMF Unspecified
CCI PMS, MAN

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

RN 165324-66-3 HCAPLUS
CN L-Lysine, methyl ester, polymer with N'-(ethylcarbonimidoyl)-N,N-dimethyl-1,3-propanediamine monohydrochloride and hyaluronic acid (9CI) (CA INDEX NAME)

CM 1

CRN 25952-53-8
CMF C8 H17 N3 . Cl H

Et-N=C=N-(CH₂)₃-NMe₂

○ HCl

CM 2

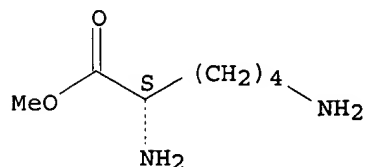
CRN 9004-61-9
CMF Unspecified
CCI PMS, MAN

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

CM 3

CRN 687-64-9
CMF C7 H16 N2 O2

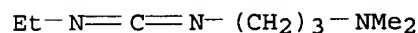
Absolute stereochemistry.



RN 165324-67-4 HCAPLUS
CN L-Lysine, polymer with N'-(ethylcarbonimidoyl)-N,N-dimethyl-1,3-propanediamine monohydrochloride and hyaluronic acid (9CI) (CA INDEX NAME)

CM 1

CRN 25952-53-8
CMF C8 H17 N3 . Cl H



O HCl

CM 2

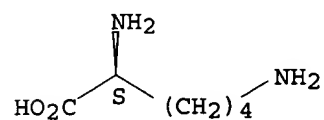
CRN 9004-61-9
CMF Unspecified
CCI PMS, MAN

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

CM 3

CRN 56-87-1
CMF C6 H14 N2 O2

Absolute stereochemistry.



ACCESSION NUMBER: 1994:536511 HCAPLUS
DOCUMENT NUMBER: 121:136511
TITLE: Novel Hydrogels of Hyaluronic Acid: Synthesis, Surface Morphology, and Solid-State NMR
AUTHOR(S): Pouyani, Tara; Harbison, Gerard S.; Prestwich, Glenn D.
CORPORATE SOURCE: Department of Chemistry, SUNY, Stony Brook, NY, 11794-3400, USA
SOURCE: Journal of the American Chemical Society (1994), 116(17), 7515-22
CODEN: JACSAT; ISSN: 0002-7863
DOCUMENT TYPE: Journal
LANGUAGE: English

AB A convenient methodol. was developed that allowed the attachment of pendent hydrazido groups to the glucuronate moieties of hyaluronic acid (I). This methodol. was extended to high mol. wt. I (1.5 .times. 106), and the products were crosslinked with four homobifunctional activated esters to give novel I hydrogels. Solid-state ¹³C NMR using cross-polarization and magic angle spinning revealed that the lyophilized native I and hydrazido I retained soln.-like structures in the solid state. The four I hydrogels showed significant structural changes relative to native I, and the carbon resonances of the crosslinkers were clearly evident. The surface morphologies of these crosslinked I derivs. were examd. using SEM. The electron micrographs of the freeze-dried hydrogels showed the presence of regular sheetlike structures forming pores (20-50 .mu.m). In contrast, native I showed predominantly fibrous and irregular structures.

CC 44-7 (Industrial Carbohydrates)

ST hyaluronate hydrogel azide **crosslinked**

IT 156464-77-6P 156464-78-7P 156464-79-8P

156464-80-1P

RL: PREP (Preparation)

(hydrogels, prepn. and NMR spectra of)

IT 156464-81-2P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(prepn. and **crosslinking** of)

IT 156464-77-6P 156464-78-7P 156464-79-8P

156464-80-1P

RL: PREP (Preparation)

(hydrogels, prepn. and NMR spectra of)

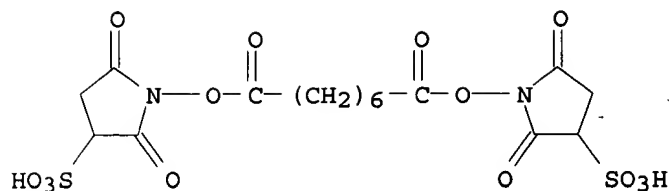
RN 156464-77-6 HCAPLUS

CN Hyaluronic acid, sodium salt, polymer with disodium 1,1'[(1,8-dioxo-1,8-octanediyl)bis(oxy)]bis[2,5-dioxo-3-pyrrolidinesulfonate] and hexanedioic acid dihydrazide (9CI) (CA INDEX NAME)

CM 1

CRN 127634-19-9

CMF C16 H20 N2 O14 S2 . 2 Na



O₂ Na

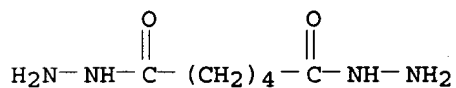
CM 2

CRN 9067-32-7
CMF Unspecified
CCI PMS, MAN

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

CM 3

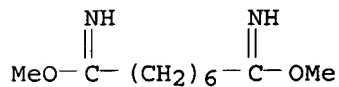
CRN 1071-93-8
CMF C6 H14 N4 O2



RN 156464-78-7 HCAPLUS
CN Hyaluronic acid, sodium salt, polymer with dimethyl octanediimide and hexanedioic acid dihydrazide (9CI) (CA INDEX NAME)

CM 1

CRN 29878-26-0
CMF C10 H20 N2 O2



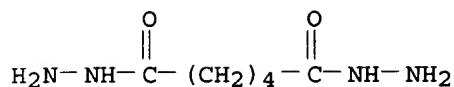
CM 2

CRN 9067-32-7
CMF Unspecified
CCI PMS, MAN

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

CM 3

CRN 1071-93-8
CMF C6 H14 N4 O2



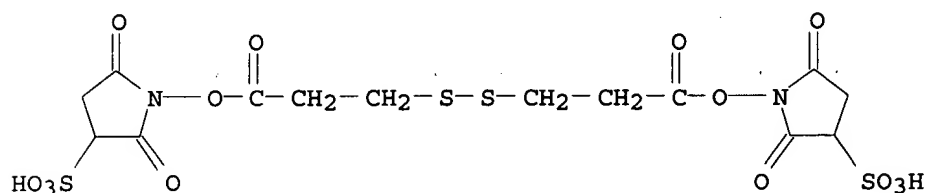
RN 156464-79-8 HCAPLUS

CN Hyaluronic acid, sodium salt, polymer with disodium 1,1'-[dithiobis[(1-oxo-3,1-propanediyl)oxy]]bis[2,5-dioxo-3-pyrrolidinesulfonate] and hexanedioic acid dihydrazide (9CI) (CA INDEX NAME)

CM 1

CRN 142702-31-6

CMF C14 H16 N2 O14 S4 . 2 Na



O2 Na

CM 2

CRN 9067-32-7

CMF Unspecified

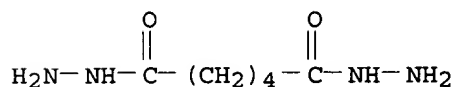
CCI PMS, MAN

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

CM 3

CRN 1071-93-8

CMF C6 H14 N4 O2



RN 156464-80-1 HCAPLUS

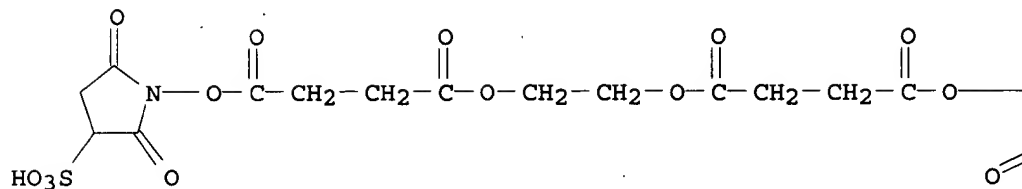
CN Hyaluronic acid, sodium salt, polymer with 1,1'-(1,2-ethanediyl) bis[4-[(2,5-dioxo-3-sulfo-1-pyrrolidinyloxy]-4-oxobutanoate] disodium salt and hexanedioic acid dihydrazide (9CI) (CA INDEX NAME)

CM 1

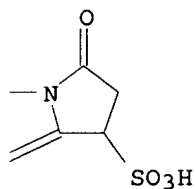
CRN 142702-32-7

CMF C18 H20 N2 O18 S2 . 2 Na

PAGE 1-A

O₂ Na

PAGE 1-B



CM 2

CRN 9067-32-7

CMF Unspecified

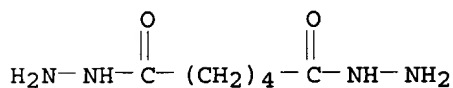
CCI PMS, MAN

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

CM 3

CRN 1071-93-8

CMF C6 H14 N4 O2



IT 156464-81-2P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(prepn. and crosslinking of)

RN 156464-81-2 HCAPLUS

CN Hyaluronic acid, sodium salt, polymer with hexanedioic acid dihydrazide (9CI) (CA INDEX NAME)

CM 1

CRN 9067-32-7

CMF Unspecified

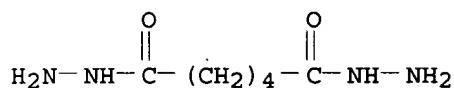
CCI PMS, MAN

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

CM 2

CRN 1071-93-8

CMF C6 H14 N4 O2



L51 ANSWER 16 OF 17 HCAPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 1994:137558 HCAPLUS

DOCUMENT NUMBER: 120:137558

TITLE: Photocurable glycosaminoglycan derivatives, crosslinked glycosaminoglycans and method of production thereof

INVENTOR(S): Matsuda, Takehisa; Moghaddan, Minoo J.; Sakurai, Katsukiyo

PATENT ASSIGNEE(S): Seikagaku Kogyo K. K., Japan

SOURCE: Eur. Pat. Appl., 55 pp.

CODEN: EPXXDW

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 554898	A2	19930811	EP 1993-101838	19930205
EP 554898	A3	19940126		
EP 554898	B1	19970507		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LI, LU, MC, NL, PT, SE				
JP 06073102	A2	19940315	JP 1992-355441	19921221
JP 2855307	B2	19990210		
RU 2139886	C1	19991020	RU 1993-4491	19930203
CA 2088831	AA	19930806	CA 1993-2088831	19930204
HU 71625	A2	19960129	HU 1993-297	19930204
HU 215503	B	19990128		
AU 9332878	A1	19930812	AU 1993-32878	19930205
AU 670921	B2	19960808		
CN 1075970	A	19930908	CN 1993-102682	19930205
CN 1083455	B	20020424		
US 5462976	A	19951031	US 1993-13799	19930205
AT 152736	E	19970515	AT 1993-101838	19930205
ES 2102537	T3	19970801	ES 1993-101838	19930205
US 5763504	A	19980609	US 1995-476236	19950607

PRIORITY APPLN. INFO.:

JP 1992-47744	A	19920205
JP 1992-203209	A	19920708
JP 1992-355441	A	19921221
US 1993-13799	B3	19930205

AB The title biopolymers with good physiol. compatibility and biol. degradability, useful for medical (e.g., prosthetic moldings) or pharmaceutical use (e.g., for drug slow-release coating), are prepd. based on modification of functional groups of substrates via, e.g., ester and amide linkages, using photosensitive modifiers which can be cured by free-radical mechanism. Example of a title deriv. was the cinnamate ester of hyaluronic acid which was formed by using cinnamoyl chloride in esterification; and the DMF soln.-cast film of the ester could be cured by UV light.

IC ICM C08B037-10

ICS C08B037-08; A61L027-00; A61K047-48

CC 44-5 (Industrial Carbohydrates)
 Section cross-reference(s): 63
 IT **Crosslinking**
 (photochem., of glycosaminoglycans bearing photocurable groups,
 intramolecularly or intermolecularly)
 IT 152787-14-9 152787-17-2 153369-05-2 **153369-06-3**
 RL: USES (Uses)
 (photoprepn. of **crosslinked** biodegradable biocompatible, for
 medical use)
 IT **153369-06-3**
 RL: USES (Uses)
 (photoprepn. of **crosslinked** biodegradable biocompatible, for
 medical use)
 RN 153369-06-3 HCAPLUS
 CN Hyaluronic acid, 3,4-dihydro-5-methyl-2,4-dioxo-1(2H)-pyrimidinepropanoate
 (ester), homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 153130-77-9
 CMF C8 H10 N2 O4 . x Unspecified

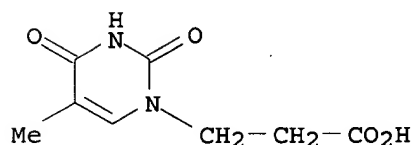
CM 2

CRN 9004-61-9
 CMF Unspecified
 CCI PMS, MAN

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

CM 3

CRN 6214-59-1
 CMF C8 H10 N2 O4



L51 ANSWER 17 OF 17 HCAPLUS COPYRIGHT 2002 ACS
 ACCESSION NUMBER: 1992:647751 HCAPLUS
 DOCUMENT NUMBER: 117:247751
 TITLE: Modified enzymes with improved stability
 INVENTOR(S): Futatsugi, Masayuki; Gushi, Kenji
 PATENT ASSIGNEE(S): Wako Pure Chemical Industries, Ltd., Japan
 SOURCE: Eur. Pat. Appl., 26 pp.
 CODEN: EPXXDW
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 506431	A1	19920930	EP 1992-302671	19920326
EP 506431	B1	19980128		
R: BE, CH, DE, ES, FR, GB, IT, LI, NL				
JP 05268950	A2	19931019	JP 1992-98674	19920325

JP 3125428	B2	20010115		
ES 2111610	T3	19980316	ES 1992-302671	19920326
CA 2064304	AA	19920929	CA 1992-2064304	19920327
US 5834273	A	19981110	US 1994-266097	19940624

PRIORITY APPLN. INFO.:

JP 1991-89697	A	19910328
US 1992-857424	B1	19920326

- AB Enzymes with improved resistance to heat, proteases, etc. and with improved storage stability in an aq. soln. are disclosed. The enzymes are crosslinked with a bifunctional crosslinker to **carboxyl group**-contg. polysaccharides, polyamino acids, or synthetic polymers. Dextran was reacted with pyromellitic anhydride, and this modified dextran was crosslinked to ascorbate oxidase using 1-ethyl-3-(3-dimethylaminopropyl)carbodiimide. The improved resistance of the modified enzyme to denaturation by heat and urea as well as its storage stability was demonstrated, and the Kms for the substrates were detd.
- IC ICM C12N009-96
- CC 7-5 (Enzymes)
- ST enzyme stabilization heat protease denaturant; pH storage stability modified enzyme; polysaccharide enzyme conjugate stability; **polyamino acid** enzyme conjugate stability; polymer synthetic enzyme conjugate stability
- IT Enzymes
RL: BIOL (Biological study)
(hydrogen peroxide-generating, stabilization of, conjugation with polysaccharides or **polyamino acids** or synthetic polymers for)
- IT **Crosslinking agents**
(bifunctional, in enzyme modification with carboxy-contg. polysaccharides or synthetic polymers or **polyamino acids**)
- IT 60-32-2D, 6-Aminocaproic acid, reaction products with dextran dialdehyde form 7585-39-9, .beta.-Cyclodextrin 9041-08-1, Sodium **heparin** 9046-40-6, Pectic acid 10016-20-3, .alpha.-Cyclodextrin 17465-86-0, .gamma.-Cyclodextrin
RL: BIOL (Biological study)
(ascorbate oxidase modified with, enzyme stabilization in relation to)
- IT 9001-05-2, Catalase 9001-37-0 9002-12-4 9002-13-5, Urease 9002-17-9 9003-99-0, Peroxidase 9028-67-5 9029-22-5 9029-44-1 9030-66-4 9031-79-2
RL: BIOL (Biological study)
(stabilization of, conjugation with polysaccharides or **polyamino acids** or synthetic polymers for)

BEST AVAILABLE COPY

=> fil wpids

FILE 'WPIDS' ENTERED AT 08:08:26 ON 30 SEP 2002
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FILE LAST UPDATED: 26 SEP 2002 <20020926/UP>
MOST RECENT DERWENT UPDATE 200262 <200262/DW>
DERWENT WORLD PATENTS INDEX SUBSCRIBER FILE, COVERS 1963 TO DATE

>>> The BATCH option for structure searches has been
enabled in WPINDEX/WPIDS and WPIX >>>

>>> PATENT IMAGES AVAILABLE FOR PRINT AND DISPLAY >>>

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=> d his

(FILE 'HOME' ENTERED AT 07:30:23 ON 30 SEP 2002)

FILE 'WPIDS' ENTERED AT 07:30:29 ON 30 SEP 2002

E WP2000027886/PN

E WO2000027886/PN

L1 1 S E3

L2 14401 S (HYALURONIC OR ALGINIC OR CELLULOSIC) (2W) ACID# OR CARBOXYMET

L3 14409 S L2 OR CARBOXYMETHYLGLUCAN# OR CARBOXYBUTYLGLUCAN# OR (CARBOXY

L4 22577 S L3 OR CHITOSAN# OR HEPARIN# OR (CHONDROITIN OR DERMATAN) (W

L5 30627 S L4 OR (POLYACRYLIC OR POLY ACRYLIC) (2W) ACID#

L6 86933 S CROSSLINK? OR CROSS (2W) LINK?

E WO2000027887/PN

FILE 'STNGUIDE' ENTERED AT 07:55:10 ON 30 SEP 2002

FILE 'WPIDS' ENTERED AT 08:01:06 ON 30 SEP 2002

L7 2282 S L6 (S) L5

L8 15217 S POLYSACCHARIDE# OR POLY SACCHARIDE#

L9 1106 S L8 (S) L6

L10 3126 S L9 OR L7

L11 17966 S POLYAMINE# OR POLY (4A) AMINE#

L12 85 S L10 AND L11

L13 10 S L12 AND A11/DC

L14 1 S PROTIC AND L12

L15 133346 S CARBOXY OR CARBOXYLIC

L16 21 S L15 AND L12

L17 21075 S DIMETHYLFORMAMIDE# OR S TETRAHYDROFURAN? OR TETRA HYDROFURAN?

L18 2541 S CARBONYLDIIMIDAZOLE OR CARBONYLTRIAZOLE OR CHLOROMETHYLPYRID?

L19 1 S L18 AND L12

L20 2 S L17 AND L12

L21 34 S L12 AND A96/DC

L22 11 S L13 OR L14 OR L19 OR L20

L23 18 S L16 NOT L22

L24 792 S L15 (4A) L11

L25 3 S L24 AND L21

L26 13 S L25 OR L22

L27 16 S L23 NOT L26

Krishnan 09/830744

FILE 'WPIDS' ENTERED AT 08:08:26 ON 30 SEP 2002

=> d que 126

L2	14401	SEA FILE=WPIDS ABB=ON PLU=ON	(HYALURONIC OR ALGINIC OR CELLULOSIC) (2W) ACID# OR CARBOXYMETHYLDEXTRAN OR CARBOXYMETHYLCELLULOSE OR CARBOXYMETHYLSTARCH OR (CARBOXYMETHYL OR CARBOXY METHYL) (2W) (STARCH OR CELLULOSE OR DEXTRAN) OR CARBOXY (2W) (METHYLSTARCH OR METHYLDEXTRAN OR METHYLCELLULOSE)
L3	14409	SEA FILE=WPIDS ABB=ON PLU=ON	L2 OR CARBOXYMETHYLGLUCAN# OR CARBOXYBUTYLGLUCAN# OR (CARBOXYMETHYL OR CARBOXYBUTYL OR CARBOXY METHYL OR CARBOXY BUTYL) (2W) GLUCAN#
L4	22577	SEA FILE=WPIDS ABB=ON PLU=ON	L3 OR CHITOSAN# OR HEPARIN# OR (CHONDROITIN OR DERMATAN) (W) (SULFATE# OR SULPHATE#)
L5	30627	SEA FILE=WPIDS ABB=ON PLU=ON	L4 OR (POLYACRYLIC OR POLY ACRYLIC) (2W) ACID#
L6	86933	SEA FILE=WPIDS ABB=ON PLU=ON	CROSSLINK? OR CROSS (2W) LINK?
L7	2282	SEA FILE=WPIDS ABB=ON PLU=ON	L6 (S) L5
L8	15217	SEA FILE=WPIDS ABB=ON PLU=ON	POLYSACCHARIDE# OR POLY SACCHARIDE#
L9	1106	SEA FILE=WPIDS ABB=ON PLU=ON	L8 (S) L6
L10	3126	SEA FILE=WPIDS ABB=ON PLU=ON	L9 OR L7
L11	17966	SEA FILE=WPIDS ABB=ON PLU=ON	POLYAMINE# OR POLY (4A) AMINE#
L12	85	SEA FILE=WPIDS ABB=ON PLU=ON	L10 AND L11
L13	10	SEA FILE=WPIDS ABB=ON PLU=ON	L12 AND A11/DC
L14	1	SEA FILE=WPIDS ABB=ON PLU=ON	PROTIC AND L12
L15	133346	SEA FILE=WPIDS ABB=ON PLU=ON	CARBOXY OR CARBOXYLIC
L17	21075	SEA FILE=WPIDS ABB=ON PLU=ON	DIMETHYLFORMAMIDE# OR S TETRAHYDROFURAN? OR TETRA HYDROFURAN? OR DIMETHYL FORMAMIDE# OR DI METHYL FORMAMIDE# OR DI METHYLFORMAMIDE#
L18	2541	SEA FILE=WPIDS ABB=ON PLU=ON	CARBONYLDIIMIDAZOLE OR CARBONYLT RIAZOLE OR CHLOROMETHYLPYRID? OR HYDROXYBENZOTRIAZOLE? OR NITROPHENOL# OR NITRO PHENOL# OR NITROPHENYLTRIFLUOROACETATE OR HYDROXYSUCCINIMIDE
L19	1	SEA FILE=WPIDS ABB=ON PLU=ON	L18 AND L12
L20	2	SEA FILE=WPIDS ABB=ON PLU=ON	L17 AND L12
L21	34	SEA FILE=WPIDS ABB=ON PLU=ON	L12 AND A96/DC
L22	11	SEA FILE=WPIDS ABB=ON PLU=ON	L13 OR L14 OR L19 OR L20
L24	792	SEA FILE=WPIDS ABB=ON PLU=ON	L15 (4A) L11
L25	3	SEA FILE=WPIDS ABB=ON PLU=ON	L24 AND L21
L26	13	SEA FILE=WPIDS ABB=ON PLU=ON	L25 OR L22

=> d que 127

L2	14401	SEA FILE=WPIDS ABB=ON PLU=ON	(HYALURONIC OR ALGINIC OR CELLULOSIC) (2W) ACID# OR CARBOXYMETHYLDEXTRAN OR CARBOXYMETHYLCELLULOSE OR CARBOXYMETHYLSTARCH OR (CARBOXYMETHYL OR CARBOXY METHYL) (2W) (STARCH OR CELLULOSE OR DEXTRAN) OR CARBOXY (2W) (METHYLSTARCH OR METHYLDEXTRAN OR METHYLCELLULOSE)
L3	14409	SEA FILE=WPIDS ABB=ON PLU=ON	L2 OR CARBOXYMETHYLGLUCAN# OR CARBOXYBUTYLGLUCAN# OR (CARBOXYMETHYL OR CARBOXYBUTYL OR CARBOXY METHYL OR CARBOXY BUTYL) (2W) GLUCAN#
L4	22577	SEA FILE=WPIDS ABB=ON PLU=ON	L3 OR CHITOSAN# OR HEPARIN# OR (CHONDROITIN OR DERMATAN) (W) (SULFATE# OR SULPHATE#)
L5	30627	SEA FILE=WPIDS ABB=ON PLU=ON	L4 OR (POLYACRYLIC OR POLY ACRYLIC) (2W) ACID#
L6	86933	SEA FILE=WPIDS ABB=ON PLU=ON	CROSSLINK? OR CROSS (2W) LINK?
L7	2282	SEA FILE=WPIDS ABB=ON PLU=ON	L6 (S) L5
L8	15217	SEA FILE=WPIDS ABB=ON PLU=ON	POLYSACCHARIDE# OR POLY SACCHARIDE#
L9	1106	SEA FILE=WPIDS ABB=ON PLU=ON	L8 (S) L6
L10	3126	SEA FILE=WPIDS ABB=ON PLU=ON	L9 OR L7
L11	17966	SEA FILE=WPIDS ABB=ON PLU=ON	POLYAMINE# OR POLY (4A) AMINE#
L12	85	SEA FILE=WPIDS ABB=ON PLU=ON	L10 AND L11
L13	10	SEA FILE=WPIDS ABB=ON PLU=ON	L12 AND A11/DC

L14 1 SEA FILE=WPIDS ABB=ON PLU=ON PROTIC AND L12
 L15 133346 SEA FILE=WPIDS ABB=ON PLU=ON CARBOXY OR CARBOXYLIC
 L16 21 SEA FILE=WPIDS ABB=ON PLU=ON L15 AND L12
 L17 21075 SEA FILE=WPIDS ABB=ON PLU=ON DIMETHYLFORMAMIDE# OR S
 TETRAHYDROFURAN? OR TETRA HYDROFURAN? OR DIMETHYL FORMAMIDE#
 OR DI METHYL FORMAMIDE# OR DI METHYLFORMAMIDE#
 L18 2541 SEA FILE=WPIDS ABB=ON PLU=ON CARBONYLDIIMIDAZOLE OR CARBONYLT
 RIAZOLE OR CHLOROMETHYLPYRID? OR HYDROXYBENZOTRIAZOLE? OR
 NITROPHENOL# OR NITRO PHENOL# OR NITROPHENYLTRIFLUOROACETATE
 OR HYDROXYSUCCINIMIDE
 L19 1 SEA FILE=WPIDS ABB=ON PLU=ON L18 AND L12
 L20 2 SEA FILE=WPIDS ABB=ON PLU=ON L17 AND L12
 L21 34 SEA FILE=WPIDS ABB=ON PLU=ON L12 AND A96/DC
 L22 11 SEA FILE=WPIDS ABB=ON PLU=ON L13 OR L14 OR L19 OR L20
 L23 18 SEA FILE=WPIDS ABB=ON PLU=ON L16 NOT L22
 L24 792 SEA FILE=WPIDS ABB=ON PLU=ON L15 (4A) L11
 L25 3 SEA FILE=WPIDS ABB=ON PLU=ON L24 AND L21
 L26 13 SEA FILE=WPIDS ABB=ON PLU=ON L25 OR L22
 L27 16 SEA FILE=WPIDS ABB=ON PLU=ON L23 NOT L26

=> d .wp tech l26 1-13;d .wp tech l27 1-16

L26 ANSWER 1 OF 13 WPIDS (C) 2002 THOMSON DERWENT
 AN 2001-487802 [53] WPIDS
 DNC C2001-146346
 TI Thermoplastic starch composition for making sheets, films and packaging
 materials comprises thermoplastic phase of starch, plasticizer and another
 thermoplastic polymer and particulate filler phase.
 DC A11 A92
 IN ANDERSEN, P J; HODSON, S K
 PA (KHAS-N) KHASHOGGI IND LLC E
 CYC 94
 PI US 6231970 B1 20010515 (200153)* 34p
 WO 2001051557 A1 20010719 (200153) EN
 RW: AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW MZ
 NL OA PT SD SE SL SZ TR TZ UG ZW
 W: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CR CU CZ DE DK DM
 DZ EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC
 LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT RO RU SD SE
 SG SI SK SL TJ TM TR TT TZ UA UG UZ VN YU ZA ZW
 AU 2001015857 A 20010724 (200166)
 ADT US 6231970 B1 US 2000-480262 20000111; WO 2001051557 A1 WO 2000-US30511
 20001103; AU 2001015857 A AU 2001-15857 20001103
 FDT AU 2001015857 A Based on WO 200151557
 PRAI US 2000-480262 20000111
 AB US 6231970 B UPAB: 20010919
 NOVELTY - A thermoplastic starch composition comprises a thermoplastic
 phase (A), prepared by mixing and heating starch and a plasticizer to form
 a thermoplastic starch melt then blending with at least one other
 thermoplastic polymer, and a solid particulate filler phase (B) (15-95% by
 weight) dispersed throughout (A).
 DETAILED DESCRIPTION - INDEPENDENT CLAIM are also included for the
 following; (1) An additional void phase dispersed throughout the
 thermoplastic starch; and (2) an inorganically filled deconstructed
 starch composition containing the thermoplastic phase with a water content
 of 5-40% by weight and the filler phase at at least 15% by weight of the
 starch composition.
 USE - As sheets, films, containers and packaging materials. An
 organic filler of sawdust, wood flour, bran or wood flakes may also be
 present and may include globules of a partially melted organic filler.
 ADVANTAGE - As some of the components of the composition are
 biodegradable, the composition is more environmentally friendly than

conventional thermoplastic materials.

Dwg.0/0

TECH

UPTX: 20010919

TECHNOLOGY FOCUS - POLYMERS - Preferred Composition: When the plasticizer of (A) has a vapor pressure of at most 1 bar and (A) is in the melted state, the plasticizer is present at 1-70% by weight (preferably 10-30%) and is ethylene glycol, propylene glycol, glycerin, 1,3-propandiol, 1,2-butandiol, 1,3-butandiol, 1,4-butandiol, 1,5-pentandiol, 1,5-hexandiol, 1,6-hexandiol, 1,2,5-hexantriol, 1,3,5-hexantriol, neopentylglycol, sorbitol acetate, sorbitol diacetate, sorbitol monoethoxylate, sorbitol diethoxylate, sorbitol hexethoxylate, sorbitol dipropoxylate, aminosorbitol, trihydroxymethylaminomethane, glucose/PEG, the reaction product of ethylene oxide and glucose, trimethylolpropane, monoethoxylate, mannitol monoacetate, mannitol monoethoxylate, butyl glucoside, glucose monoethoxylate, alpha-methyl glucoside, Na salt of carboxymethylsorbitol, polyglycerolmonoethoxylate, erythritol, pentaerythritol, arabitol, adonitol, xylitol, mannitol, iditol, galactitol, allitol, sorbitol, general polyhydric alcohols, esters of glycerin, DMSO, monoglycerides, diglycerides, alkylamides, polyols, trimethylolpropane, polyvinyl alcohol and/or polyglycerols. Water may also be present. When the vapor pressure of the plasticizer is at least 1 bar, the plasticizer (5-40% by weight) is selected from water, alcohols, aldehydes, ketones, organic acids, amines, esters, amides and/or imides. The filler accounts for 5-90% of the volume and at least 25% by weight (preferably 50%) of the composition and is sand, crushed rock, bauxite, granite, limestone, sandstone, glass beads, mica, clay, alumina, silica, fly ash, fumed silica, kaolin, glass microspheres, hollow glass spheres, porous ceramic spheres, gypsum mono- and dihydrates, insoluble salts, calcium and magnesium carbonate, calcium hydroxide, calcium aluminate, titanium dioxide, talc, ceramics, pozzolans, zirconium compounds, xonotlite, silicate gels, lightweight expanded clays, perlite, vermiculite, hydraulic cement particles, pumice, zeolites, exfoliated rock, ores, natural minerals, metallic particles and/or metallic flakes. The additional thermoplastic polymer is an aliphatic polyester and/or an aliphatic-aromatic copolyester. The water content of the melt can be at most 5% by weight. The composition contains a volatile plasticizing solvent (5-40% by weight) of water, alcohols, aldehydes, ketones, organic acids, amines, esters, amides and/or imides that is removed from the melt by evaporation during processing. The starch is derived from corn, waxy corn, potatoes, wheat, sorghum, rice, waxy rice, tapioca, cassava, sweet potato, manioc, arrow root and/or the pith of sago palm. The starch contains its natural water content or it is reduced to at most 3% and, in the melt, the water content is reduced to at most 1% by weight. The additional thermoplastic component is a biodegradable polycondensate that can cross-condense with the starch. This polymer is a polyester, polyamide, polyesteramide, polyimide, polylactone, polylactide, polylactam and/or polyether or derivatives of them and contains reactive sites that are able to form a chemical bond with the starch. It is at least one of (a) homopolymer of aliphatic or aromatic hydroxyacid, lactone or lactide, (b) copolymers of same monomers or aliphatic or aromatic isocyanates, (c) block or graft copolymers of (a) and (b) with (i) cellulose, cellulose esters or ethers, (ii) amylose, amylopectin, natural starch or modified starch, (iii) polymers derived from diols selected from ethylene glycol, propylene glycol, butylene glycol, polyoxyethylene. This thermoplastic polymer is preferably a polyester made from 6-hydroxycaproic acid, 6-hydroxyoctanoic acid, 3,7-dimethyl-6-hydroxyoctanoic acid or their lactones, an aliphatic-aromatic polyester or polyolefin, alkylsiloxane, polyolefin adipate, polyolefin terephthalate, ethylene vinylacetate, vinyl resin and/or polystyrene. The thermoplastic polymer component can also be hydrophobic and can be a protein, cellulose material, polysaccharide gum or polymer derived from plant or animals. The starch to other polymers ratio is 1:9 to 9:1, preferably 3:7 to 7:3. The thermoplastic phase also includes a thermosetting resin, a

crosslinking agent selected from polyacid, **polyamine** or anhydride and a component able to react with the starch hydroxyl groups. Lubricants, dispersant, humectants, water-proofing agents, phase mediators, softeners, mold release agents, flexibilizers and/or blending enhancers. The thermoplastic phase is 10-90% of composition, preferably 30-70%. A fibrous phase where fibers have an aspect ratio greater than 10:1, preferably 25:1, can be present up to 90%, preferably 10-30%, of composition. The fiber length is from 0.1 mm to greater than 2 mm and are inorganic fibers selected from glass, graphite, silica, ceramic rock wool or metallic fibers or organic fibers selected from cotton, hardwood, softwood, flax, abaca, sisal, ramie, hemp, bagasse, recycled paper and polymer fibers. Preferred Properties: The thermoplastic starch composition forms a film of 1 mm to 1 cm or a molded article of wall thickness 0.1 mm to 10 cm. The thermoplastic phase is biodegradable, degradable in water but is impermeable to water. The film or sheet can be stretched in at least one direction. The thermoplastic starch has a crystallinity of less than 5% and a melting point between 70 and 240 (preferably 100-200) degreesC. It can form a laminate coating to a substrate.

L26 ANSWER 2 OF 13 WPIDS (C) 2002 THOMSON DERWENT

AN 2001-420122 [45] WPIDS

DNC C2001-127218

TI Crosslinked copolymers, biodegradable in the digestive tract, suitable for the controlled release of pharmaceuticals.

DC A11 A14 A96 B07

IN DIANCOURT, F; DUCOS, C; LABARRE, D; LAMBERT, N

PA (SCRC) SCRAS SOC CONSEILS RECH & APPL SCI; (SCRC) SAS SOC CONSEILS RECH & APPL SCI; (SCRC) SOC CONSEILS RECH & APPL SCI

CYC 94

PI FR 2799196 A1 20010406 (200145)* 17p

AU 2000076706 A 20010510 (200145)

WO 2001025295 A1 20010412 (200145) FR

RW: AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW MZ
NL OA PT SD SE SL SZ TZ UG ZW

W: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CR CU CZ DE DK DM
DZ EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC
LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT RO RU SD SE
SG SI SK SL TJ TM TR TT TZ UA UG US UZ VN YU ZA ZW

NO 2002001573 A 20020531 (200248)

ADT FR 2799196 A1 FR 1999-12363 19991004; AU 2000076706 A AU 2000-76706
20001003; WO 2001025295 A1 WO 2000-FR2731 20001003; NO 2002001573 A WO
2000-FR2731 20001003, NO 2002-1573 20020403

FDT AU 2000076706 A Based on WO 200125295

PRAI FR 1999-12363 19991004

AB FR 2799196 A UPAB: 20010813

NOVELTY - **Crosslinked** copolymers from an uncrosslinked polycarboxylic acid copolymer and a **crosslinking** agent having at least two amino groups. The polycarboxylic acid copolymer has a **polysaccharide** chain attached through a covalent bond to least one other non-**crosslinked** and non-saccharidic polymer, at least one of these polysaccharidic or non-saccharidic copolymers is polycarboxylic.

USE - The polymers are biodegradable by the microbial flora of the colon and are useful as controlled release carriers for pharmaceuticals (claimed). The copolymers have pharmaceutical, cosmetic, biomedical, veterinary, chemical, agrochemical and agro-alimentary applications. In particular they are carriers for pharmaceuticals to be liberated in the colon or in the upper digestive tract, such as steroids, anti-inflammatories (steroidal and non-steroidal), antineoplastics, antispasmodics, and chemotherapeutic agents.

Dwg.0/0

TECH UPTX: 20010813

TECHNOLOGY FOCUS - POLYMERS - Preferred Polymers: Suitable non-carboxylic polysaccharide copolymers include agarose, agaropectin, amylose,

amylopectin, arabino-galactane, carrageenans, cellulose, methyl cellulose, chitosan, dextran, fucans, fucoidans, tragacanth, arabic, caruba and guar gums, or pullan. Suitable polycarboxylic polysaccharides include hyaluronic acid, chondroitin sulfate, heparin, dermatan sulfate, heparan sulfate, keratan sulfate, glycosaminoglycans, pectinic acid and alginic acid. Suitable non-saccharidic non-carboxylic polymers include poly(vinyl acetate), poly(vinyl alcohol), poly(acrylic esters), poly(methacrylic esters), poly(methylacrylamides), and poly(acrylamides). Suitable amines may be natural or synthetic, and are preferably diamines, these include ethylene diamine, butane diamine, hexane diamine, heptane diamine, octane diamine, and dodecane diamine

TECHNOLOGY FOCUS - ORGANIC CHEMISTRY - Preparation: The products are prepared by mixing the polycarboxylic copolymers with the **crosslinking** agent in an aqueous medium in the presence of an activator such as a carbodiimide, a quinoline, or a mixed anhydride. The non-saccharidic monomer is grafted on to the **polysaccharide** in an aqueous medium in the presence of a catalyst such as ceric ions.

L26 ANSWER 3 OF 13 WPIDS (C) 2002 THOMSON DERWENT

AN 2000-441918 [38] WPIDS

DNC C2000-134175

TI Composition for controlled release of carbohydrates contains a mixture of carbohydrate and physically and/or covalently **crosslinked polysaccharide**.

DC A11 A97 D13 E19

IN ZECHER, D C

PA (HERC) HERCULES INC

CYC 89

PI WO 2000032064 A1 20000608 (200038)* EN 23p

RW: AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW NL
OA PT SD SE SL SZ TZ UG ZW

W: AE AL AM AT AU AZ BA BB BG BR BY CA CH CN CR CU CZ DE DK DM EE ES
FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS
LT LU LV MA MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL
TJ TM TR TT TZ UA UG UZ VN YU ZA ZW

AU 2000019085 A 20000619 (200044)

ADT WO 2000032064 A1 WO 1999-US26024 19991129; AU 2000019085 A AU 2000-19085 19991129

FDT AU 2000019085 A Based on WO 200032064

PRAI US 1998-208108 19981130

AB WO 200032064 A UPAB: 20000811

NOVELTY - A carbohydrate composition comprises a mixture of carbohydrate and physically and/or covalently **crosslinked polysaccharide**.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for:

(A) a process of preparing a mixture of carbohydrate and physically and/or covalently **crosslinked polysaccharide** comprising:

(a) contacting carbohydrate with **crosslinkable polysaccharide**; and

(b) **crosslinking the polysaccharide**; and

(B) a diabetic food containing the carbohydrate composition of (A).

USE - The invention is used as controlled release carbohydrates (CRC) useful in various food products like cereals, granola bars, high energy bars, diabetic foods, and nutritional beverages for glycemic control of diabetic, and for sustainment of physical activity for athletes and the general population. It can also be used in foodstuffs, spreadable gels, particle stabilization, and pharmaceuticals.

ADVANTAGE - The invention exhibits slow digestibility of carbohydrates to provide a controlled or steady release of glucose to the body over a period of several hours.

Dwg.0/0

TECH

UPTX: 20000811

TECHNOLOGY FOCUS - POLYMERS - Preferred Material: The carbohydrate is a digestible carbohydrate, that can be mono-, di-, or **polysaccharide**, preferably glucose, lactose, maltose, fructose, dextrins, maltodextrins, raw starches, modified starches, or pregelatinized starches. The **polysaccharide** is carrageenan, pectins, xanthan, alginates, gum arabic, galactomannans, or cellulose, that can be **carboxymethylcellulose** (preferred), methylcellulose, hydroxypropylcellulose, or methylhydroxypropylcellulose. The galactomannans can be locust bean gum, tara gum, or guar.

Preferred Component: The digestible carbohydrate can be raw or modified starches. The **crosslinked polysaccharide** contains carboxyl or carboxymethyl groups, and the alginates and pectins has low degree of esterification. The degree of substitution of **carboxymethylcellulose** is 0.3-1.5 (preferably 0.95). The **crosslinking agent** is organic **polyamines**, polyalkylhalides, or polyacylhalides.

Preferred Composition: The composition contains at least 40 wt.% (preferably 90 or 95 wt.%) digestible carbohydrate and at least 5 wt.% (preferably 40 or 60 wt.%) **crosslinked polysaccharide**.

Preferred Process: The **crosslinking** is carried out by heat treatment in the presence of a **crosslinking agent** or an acid. It is conducted by:

- (i) preparing a slurry of starch in **carboxymethylcellulose** solution containing acid;
- (ii) adding the slurry to water miscible nonsolvent to precipitate the **carboxymethylcellulose**;
- (iii) recovering the precipitate; and
- (iv) heating the recovered precipitate at a temperature sufficient to **crosslink** the precipitate.

The slurry can also be dried at low temperature to form thin sheet, which can be grind into powder and heated to **crosslink** the powder. The **crosslinking** step can also be conducted by (aa) mixing starch, **carboxymethylcellulose**, acid and water in high solids mixer to form a dough; (bb) reducing the dough into small pieces; and (cc) heating to **crosslink** the pieces.

Preferred Condition: The heat treatment is conducted at 80-200degreesC.

TECHNOLOGY FOCUS - INORGANIC CHEMISTRY - Preferred Compound: The acid is a strong mineral acid, that can be hydrochloric acid, sulfuric acid, phosphoric acid, or nitric acid.

TECHNOLOGY FOCUS - ORGANIC CHEMISTRY - Preferred Agent: The **crosslinking agent** can also be polyols, diepoxides, dialdehydes, divinylsulfone urea, dimethylol urea diacids, diisocyanates, dialdehydes, or their combination. Preferred Component: The acid can also be an organic acid of an aliphatic mono-, di-, or polycarboxylic acid having 1-10 (preferably 2-6) carbon atoms. Preferred Compound: The organic acid is formic acid, acetic acid, propionic acid, citric acid, tartaric acid, malic acid, malonic acid, succinic acid, or adipic acid. The nonsolvent is methanol, ethanol, isopropanol, or acetone.

Preferred Composition: The amount of acid is at least 2 wt.% (preferably 10 wt.%) based on the weight of the **crosslinkable polysaccharide**.

L26 ANSWER 4 OF 13 WPIDS (C) 2002 THOMSON DERWENT

AN 2000-411505 [35] WPIDS

DNC C2000-124563

TI New **crosslinked hyaluronic acids** are useful as substitutes for synovial fluid or vitreous humor, as controlled-release matrices, as healing and antiadhesive agents and in vascular prosthesis.

DC A96 B03 B07 D21 D22

IN BARBUCCI, R; RAPUOLI, R

PA (AQUI-N) AQUISITIO SPA; (FALO-N) FALORNI ITAL FARM SRL

CYC 91

PI WO 2000027887 A2 20000518 (200035)* EN 22p

RW: AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW NL
OA PT SD SE SL SZ TZ UG ZWW: AE AL AM AT AU AZ BA BB BG BR BY CA CH CN CR CU CZ DE DK DM EE ES
FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS
LT LU LV MA MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL
TJ TM TR TT TZ UA UG US UZ VN YU ZA ZW

AU 2000026600 A 20000529 (200041)

BR 9915235 A 20010724 (200147)

NO 2001002315 A 20010706 (200151)

CZ 2001001650 A3 20010912 (200158)

EP 1144459 A2 20011017 (200169) EN

R: AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT
RO SE SI

IT 1303735 B 20010223 (200214)

CN 1328573 A 20011226 (200227)

KR 2001101001 A 20011114 (200230)

HU 2001004296 A2 20020328 (200234)

ADT WO 2000027887 A2 WO 1999-EP8481 19991108; AU 2000026600 A AU 2000-26600 19991108; BR 9915235 A BR 1999-15235 19991108; WO 1999-EP8481 19991108; NO 2001002315 A WO 1999-EP8481 19991108; NO 2001-2315 20010510; CZ 2001001650 A3 WO 1999-EP8481 19991108; CZ 2001-1650 19991108; EP 1144459 A2 EP 1999-968778 19991108; WO 1999-EP8481 19991108; IT 1303735 B IT 1998-MI2440 19981111; CN 1328573 A CN 1999-813143 19991108; KR 2001101001 A KR 2001-705929 20010510; HU 2001004296 A2 WO 1999-EP8481 19991108, HU 2001-4296 19991108

FDT AU 2000026600 A Based on WO 200027887; BR 9915235 A Based on WO 200027887; CZ 2001001650 A3 Based on WO 200027887; EP 1144459 A2 Based on WO 200027887; HU 2001004296 A2 Based on WO 200027887

PRAI IT 1998-MI2440 19981111

AB WO 200027887 A UPAB: 20000725

NOVELTY - **Crosslinked hyaluronic acids**

obtained by reaction of the **carboxylic acids** with a **polyamine** are new.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are included for:

(i) complexes of zinc, copper or iron and the **cross-linked hyaluronic acid**;

(ii) use of **crosslinked hyaluronic acids** and complexes as substitutes for synovial fluid or vitreous humor, as controlled-release matrices and as healing and antiadhesive agents;

(iii) use of **crosslinked hyaluronic acids** in vascular prosthesis, biohybrid organs, healing devices, ophthalmic and otological compositions, prosthesis, implants and medical devices;

(iv) biomaterials comprising the **crosslinked hyaluronic acids**.

USE - The **crosslinked hyaluronic acids** are useful as substitutes for synovial fluid (for the treatment of osteoarthritic conditions) or vitreous humor, as artificial tears for the treatment of dry eye conditions, as controlled-release matrices, as wound or skin ulcer healing devices and antiadhesive agents for artificial blood vessels and heart valves. , in vascular prosthesis, biohybrid organs, ophthalmic products (lens substitutes and contact lenses) and otological compositions. They are generally applicable in various anti-adhesion implants for use in surgery and in medical devices such as stents, catheters and cannulas and in biomaterials. The **crosslinked hyaluronic acids** are also useful as moisturizing agents, as bases for cosmetic formulations and as injectable filling agents.

ADVANTAGE - The **cross-linked hyaluronic acids** have high biocompatibility, high resistance to enzymatic degradation (especially after sulfation), high capacity to absorb water and ability to chelate metal ions.

Dwg.0/0

TECH

UPTX: 20000725

TECHNOLOGY FOCUS - ORGANIC CHEMISTRY - Preferred Components: The **polyamine** is preferably a diamine, especially of formula $R_1NH-A-NHR_2$

A = 2-10C alkylene (optionally substituted by OH, carboxy, halo, alkoxy or NH₂), ((CH₂)_n-O-(CH₂)_n)_m, aryl or heteroaryl;

n = 2 or 3;

m = 2 to 10;

R₁, R₂ = H, 1-6C alkyl, phenyl or benzyl.

The **crosslinked hyaluronic acids** may be sulfated or hemisuccinylated.

L26 ANSWER 5 OF 13 WPIDS (C) 2002 THOMSON DERWENT

AN 2000-387405 [33] WPIDS

DNC C2000-117538

TI Preparation of **crosslinked polysaccharides** containing carboxy groups by activation of carboxy groups by reacting with carboxy-activating groups in anhydrous **protic** solvent and then with **polyamine**.

DC All A96 B07 D21

IN BARBUCCI, R; SPOROLETTI, G

PA (AQUI-N) AQUISITIO SPA

CYC 91

PI WO 2000027886 A1 20000518 (200033)* EN 27p

RW: AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW NL
OA PT SD SE SL SZ TZ UG ZW

W: AE AL AM AT AU AZ BA BB BG BR BY CA CH CN CR CU CZ DE DK DM EE ES
FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS
LT LU LV MA MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL
TJ TM TR TT TZ UA UG US UZ VN YU ZA ZW

AU 2000013803 A 20000529 (200041)

BR 9915238 A 20010724 (200147)

NO 2001002316 A 20010706 (200151)

EP 1137670 A1 20011004 (200158) EN

R: AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT
RO SE SI

CZ 2001001651 A3 20011212 (200206)

IT 1303738 B 20010223 (200214)

CN 1325409 A 20011205 (200223)

KR 2001101002 A 20011114 (200230)

HU 2001004075 A2 20020429 (200238)

ADT WO 2000027886 A1 WO 1999-EP8480 19991109; AU 2000013803 A AU 2000-13803 19991109; BR 9915238 A BR 1999-15238 19991109; WO 1999-EP8480 19991109; NO 2001002316 A WO 1999-EP8480 19991109; NO 2001-2316 20010510; EP 1137670 A1 EP 1999-971819 19991109; WO 1999-EP8480 19991109; CZ 2001001651 A3 WO 1999-EP8480 19991109; CZ 2001-1651 19991109; IT 1303738 B IT 1998-MI2443 19981111; CN 1325409 A CN 1999-813144 19991109; KR 2001101002 A KR 2001-705930 20010510; HU 2001004075 A2 WO 1999-EP8480 19991109; HU 2001-4075 19991109

FDT AU 2000013803 A Based on WO 200027886; BR 9915238 A Based on WO 200027886; EP 1137670 A1 Based on WO 200027886; CZ 2001001651 A3 Based on WO 200027886; HU 2001004075 A2 Based on WO 200027886

PRAI IT 1998-MI2443 19981111

AB WO 200027886 A UPAB: 20000712

NOVELTY - Processes for the preparation of **crosslinked polysaccharides** containing carboxy groups comprising:

(a) activation of the carboxy groups of the polysaccharide by reaction with suitable carboxy-activating groups in anhydrous **protic** solvent; and

(b) reaction of the **carboxy**-activated polysaccharide with a **polyamine**.

USE - The processes are used to prepare **crosslinked**

polysaccharides containing carboxy groups (claimed), which are used in the medical, pharmaceutical, veterinary and dermo-cosmetic fields.

ADVANTAGE - The processes provide a high degree of reproducibility of the obtained products in terms of **crosslinking** degree, homogeneity of the distribution of the **crosslinking** chains and chemico-physical characteristics of the products and the technological characteristics of the articles obtained from the products, which are important for the medical, pharmaceutical and dermo-cosmetic fields. The **crosslinked** carboxylated **polysaccharides** can be prepared in a wide range of shapes characterized by different properties such as viscoelasticity, hydration degree, complexing ability towards metal ions, ability to form hydrogels, moldability in films or sponges and mechanical strength of the final materials.

Dwg.0/0

TECH

UPTX: 20000712

TECHNOLOGY FOCUS - ORGANIC CHEMISTRY - Preferred Preparation: The **polysaccharide** is a **hyaluronic acid** (obtained from tissues or bacteria), **carboxymethyldextran**, **carboxymethylcellulose**, **carboxymethylstarch**, **alginic acids**, **cellulosic acid**, **N-carboxymethyl** or **butyl glycans** or **chitosans**, **heparins** with different molecular weights, optionally desulfated and succinylated, **dermatan sulfates**, **chondroitin sulfates**, **heparan sulfates** or **polyacrylic acids**. The carboxy-activating agent is **carbonyldiimidazole**, **carbonyltriazole**, **chloromethylpyridylum iodide**, **hydroxybenzotriazole**, **p-nitrophenol**, **p-nitrophenyltrifluoroacetate** or **N-hydroxysuccinimide**. The **polyamines** are of formula (I), **polyoxyalkylene** chains of formula (II), **aryl** or **hetaryl**, preferably 1,3- or 1,4-disubstituted benzene. The **polysaccharide** is salified with lipophilic cations, preferably **tributyl** or **tetralkyl ammonium**. The **crosslinking** reaction is carried out in anhydrous **dimethylformamide** or **tetrahydrofuran**. The obtained **crosslinked polysaccharide** is further subjected to sulfation of the hydroxy groups by reaction with the **pyridine/sulfur trioxide** complex. The sulfation reaction is carried out in **dimethylformamide** in a heterogeneous phase at 0-10degreesC for 0.5-6 hours. The **crosslinked**, optionally sulfated **polysaccharide** is further subjected to complexation reaction with aqueous solutions of copper, zinc or iron ions.
R1, R2 = H, 1-6C alkyl, phenyl or benzyl;
A = 2-10 (2-6)C alkylene chain optionally substituted by hydroxy, carboxyl, halo, alkoxy or amino;
n = 2-3; and
m = 2-10.

L26 ANSWER 6 OF 13 WPIDS (C) 2002 THOMSON DERWENT

AN 2000-126443 [11] WPIDS

DNC C2000-038463

TI Hydrogel product used as absorbent for removing non-desirable metal ions in metallurgical industry.

DC A11 A97 D15 J01 M25

IN ERSSON, B; PORATH, J

PA (ERSS-I) ERSSON B; (PORA-I) PORATH J

CYC 87

PI WO 9964149 A1 19991216 (200011)* EN 31p

RW: AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW NL
OA PT SD SE SL SZ UG ZW

W: AE AL AM AT AU AZ BA BB BG BR BY CA CH CN CU CZ DE DK EE ES FI GB
GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU
LV MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR
TT UA UG UZ VN YU ZA ZW

SE 9802099 A 19991213 (200014)

SE 512234 C2 20000214 (200015)
 AU 9948113 A 19991230 (200022)
 EP 1094894 A1 20010502 (200125) EN

R: AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE

US 6339039 B1 20020115 (200208)#

ADT WO 9964149 A1 WO 1999-SE991 19990608; SE 9802099 A SE 1998-2099 19980612;
 SE 512234 C2 SE 1998-2099 19980612; AU 9948113 A AU 1999-48113 19990608;
 EP 1094894 A1 EP 1999-931670 19990608, WO 1999-SE991 19990608; US 6339039
 B1 Provisional US 1998-89041P 19980612, US 1999-330077 19990611

FDT AU 9948113 A Based on WO 9964149; EP 1094894 A1 Based on WO 9964149

PRAI SE 1998-2099 19980612; US 1999-330077 19990611

AB WO 9964149 A UPAB: 20000301

NOVELTY - Hydrogel product comprises a water insoluble crosslinked polymer which is chemically bound to a soluble polymer material. Additional polymer materials are built on support matrix through different kinds of crosslinks. The support matrix is optionally present in the form of an acid or base stable residue.

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is also included for the process of production of hydrogel product. **Polysaccharide** /protein network is activated by incorporating polyalkylene imine chains A1 into it and it is at the same time **crosslinked** with a **crosslinking** agent X1 and coupled to a new alkylene imine A2 which is activated by X2. The process is repeated and the unreacted substituents are removed from solid phase by washing.

USE - For removing non-desirable metal ions and extracting metals, in metallurgical industry.

ADVANTAGE - The shape of the hydrogel product is retained even after chemical treatment. The absorbent which selectively binds different materials like metals, can be regenerated. Small amounts of valuable metals obtained from large quantities of waste, can be economically recycled.

DESCRIPTION OF DRAWING(S) - The figure shows the schematically represents the crosslinking of the support matrix and **polyamines**, degradation of the hydrogel product.

Dwg.1/1

TECH

UPTX: 20000301

TECHNOLOGY FOCUS - POLYMERS - Preferred Product: The product of formula (I).

P-Y-X1A1-X2A2-...-XiAi-XnAn (I)

P = support matrix;

Y = N, S or O bridge;

X1...Xi...Xn = di-, tri, or polyfunctional **crosslinking** agents;

A1...Ai...An = water soluble polymers materials, preferably of **crosslinked** residues of amines; and

n and i = whole numbers where i less than n and n more than 2.

The hydrogel product is in the form of particular, spherical, thread shape, membrane shape, porous or spongy. The **crosslinking** agents are of different kinds with one or more **crosslinks** which are broken or intact.

Preferred Matrix: The support matrix consists of **polysaccharide** such as agar, agarose, cellulose, **crosslinked** dextran, starch, protein, a mixture of **polysaccharide** and protein or its derivatives. The activation by the **polyamine** units A1-An takes place through a two-step process. The unsaturated substituents, preferably alkenyl, most preferably allyl groups are incorporated at the primary and/or secondary amino groups. The unsaturated substituents are saturated with halogen water preferably bromine water. Coupling with amines takes place in an alkaline environment. The **polysaccharide** /protein network is subjected to degradation to form an acid and base stable residue.

AN 1999-329229 [28] WPIDS
 DNC C1999-097538
 TI Microcapsules for artificial insemination in pigs contains pig seminal material.
 DC A11 A14 A23 A26 A32 A96 A97 B07 C07 D16
 IN CONTE, U; GIUNCHEDI, P; MAFFEO, G; MAGGI, L; RUSSO, V; TORRE, M L M; VIGO, D
 PA (UYPA-N) UNIV DI PAVIA
 CYC 25
 PI EP 922451 A2 19990616 (199928)* EN 7p

R: AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT
 RO SE SI

IT 1296585 B 19990714 (200161)

ADT EP 922451 A2 EP 1998-122633 19981127; IT 1296585 B IT 1997-MI2652 19971128

PRAI IT 1997-MI2652 19971128

AB EP 922451 A UPAB: 19990719

NOVELTY - Microcapsules comprising:

(a) a liquid nucleus containing a suspension of pig seminal material and a biodegradable and/or biocompatible polymer; and

(b) a film consisting of a possibly cross-linked alginate of a bivalent or trivalent material.

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is also included for the preparation of the microcapsules which comprises the following steps:

(a) Pig seminal material is suspended in a suitable amount of solution, consisting of an aqueous solution containing: glucose in a concentration of between 0.5-10%, sodium bicarbonate in a concentration of between 0.02-4.0%, potassium chloride (0.01-2.0%), penicillin (102 U.I/I) and 1010 U.I/L, streptomycin (0.01-2.0%) or other antibiotics normally used for this purposes in a suitable concentration, so as to obtain a concentration of spermatozoa of from 1×10^4 up to 5×10^{10} cells/ml;

(b) the biocompatible and/or biodegradable polymer and then an aqueous solution of halides of bivalent metals or trivalent metals is added to the suspension obtained in step (a);

(c) the suspension resulting from (b) is added, drop by drop to a solution of sodium alginate, keeping the temperature of the entire system within a range of 5-45 deg. C and microcapsules of a gelatinous type are obtained, which are subsequently dispersed in the diluter for pig semen;

(d) the microcapsules obtained may be reticulated by means of a suspension in an aqueous solution of a cross-linking agent of a polyamine type, which is kept under stirring, to give rise to rigid microcapsules.

ACTIVITY - Antiinfertility.

MECHANISM OF ACTION - None given.

USE - The microcapsules are used for artificial insemination of pigs.

ADVANTAGE - The microcapsules containing active seminal material which remain stable,

can be released over a prolonged period of time and is more convenient for insemination techniques. The dimensions of the microcapsule also enable easy manipulation, transportation and preservation.

Dwg.0/0

TECH UPTX: 19990719

TECHNOLOGY FOCUS - BIOLOGY - The microcapsules are gelatinous and the film of alginate is not cross-linked and is bio-erodible or is a rigid-type, with the film of alginate being cross-linked.

Preferred Biodegradable/Biocompatible Polymer: The biodegradable and/or biocompatible polymer is selected from the group consisting of: glucans, scleroglucans, mannans, galactomannans, gellans, carrageenans, chitosans, pectins, xanthanes, polyanhydrides, polyamino acids, poly-(methyl vinyl ethers/ maleic anhydride), carboxymethyl cellulose and their derivatives, sodium carboxymethyl cellulose, polyvinyl alcohols, hydroxypropyl cellulose with a mean molecular weight of 2000-4000000, hydroxypropyl methylcellulose,

carboxyvinyl polymers, alginic acid and their derivatives, polyvinyl alcohols, ethylcellulose, methylcellulose and cellulose derivatives, starches, alpha-, beta-, gamma-cyclodextrins and derivatives of dextrins. Preferred Molecular Weights: The biodegradable polymer is especially hydroxypropyl cellulose with a mean molecular weight of 10000-2000000.

The biodegradable and/or biocompatible polymer is contained in the microcapsule in concentrations of 20-80% of the total weight of the microcapsule.

Preferred Alginate: The film of alginate is of a bivalent metal selected from alginate of strontium, zinc and especially calcium; the alginates of the trivalent metals are selected from those of aluminum, iron and especially chromium.

The microcapsules are preferably in 2% aqueous solution with a viscosity of 200-20000 cps at a temperature of 25degreesC, with dimensions of between 50 microns and 8 mm (preferably between 100 microns and 5.0 mm).

Preferred Preparation: The diluter for pig seminal material in (b) contains glucose in a concentration of between 1.5-5 wt%, sodium bicarbonate in a concentration of 0.05-0.8%, potassium chloride (0.01-0.10%), penicillin of between 104 U.I/I and 108 U.I/I., streptomycin 0.04-0.90% with the purpose of obtaining a concentration of between 2 x 10⁵ and 5 x 10⁸ cells/ml.

The halides used in (b) are preferably halides of bivalent metals e.g. calcium chloride or zinc chloride used in concentration of 0.01-1.0 M.

Step (c) is conducted at a temperature of 10-25degreesC, and the suspension is extruded through hypodermic needles.

Preferred Cross-Linking Agent: In step (d), the cross-linking agent is selected from: protamine sulphate or phosphate, preferably in the form of an aqueous solution in concentrations of 0.1-5.0 (0.5-3.0) % w/v, polylysine bromohydrate of molecular weight 1000-800000 in an aqueous solution at a concentration of 0.001-5.0 % w/v, and polyvinyl amine (0.01-1.0%) w/v.

The process is carried out for between 2 minutes and 180 minutes.

L26 ANSWER 8 OF 13 WPIDS (C) 2002 THOMSON DERWENT

AN 1999-277235 [23] WPIDS

DNC C1999-081414

TI Agent for separating optical isomers.

DC A11 A96 A97 B04

IN OKAMOTO, Y; YASHIMA, E

PA (DAIL) DAICEL CHEM IND LTD; (DAIL) DAICEL KAGAKU KOGYO KK

CYC 23

PI WO 9918052 A1 19990415 (199923)* JA 25p

RW: AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE

W: CN KR US

JP 11171800 A 19990629 (199936) 11p

EP 978498 A1 20000209 (200012) EN

R: CH DE FR GB IT LI

CN 1241173 A 20000112 (200022)

US 6217769 B1 20010417 (200123)

KR 2000069261 A 20001125 (200130)

ADT WO 9918052 A1 WO 1998-JP4367 19980929; JP 11171800 A JP 1998-266644 19980921; EP 978498 A1 EP 1998-944293 19980929, WO 1998-JP4367 19980929; CN 1241173 A CN 1998-801455 19980929; US 6217769 B1 WO 1998-JP4367 19980929, US 1999-284854 19990419; KR 2000069261 A WO 1998-JP4367 19980929, KR 1999-704872 19990602

FDT EP 978498 A1 Based on WO 9918052; US 6217769 B1 Based on WO 9918052; KR 2000069261 A Based on WO 9918052

PRAI JP 1998-266644 19980921; JP 1997-271064 19971003

AB WO 9918052 A UPAB: 20011203

NOVELTY - Agent for separating optical isomers comprises:

- (1) a polysaccharide derivative supported on a carrier and immobilized by coating the surface with a polymer; or
- (2) pulverized or spheronized polysaccharide derivative coated on the

surface with a polymer.

USE - For separating optical isomers (preferably by chromatography).

ADVANTAGE - The agent has high solvent resistance, can be produced by a short process and gives good optical resolution.

Dwg.0/0

TECH

UPTX: 19990616

TECHNOLOGY FOCUS - ORGANIC CHEMISTRY - Preferred Agent: The carrier has a particle size of 0.1microns to 10 mm with spaces of 10-100 microns. The **polysaccharide** contains at least 0.1 parts of an ester or carboxylate group per sugar residue which can form ester or ureido bonds and is preferably a polyol, **polyamine** or polythiol compound. The polymer is prepared from hydrocarbonyl compounds containing vinyl groups, methacrylate acid derivatives, acrylate acid derivatives or cinnamates and preferably comprises diisocyanate, dicarboxylic acid, diepoxy or divinyl **cross-linking** agents.

L26 ANSWER 9 OF 13 WPIDS (C) 2002 THOMSON DERWENT

AN 1998-312225 [27] WPIDS

DNC C1998-096318

TI Microencapsulated hydrophobic material, especially sun screens - uses chitin or a **poly** hydroxylated **poly amine** as the encapsulating material.

DC A11 A96 B07 D21 E19

IN GRANDMONTAGNE, B; MARCHIO, F

PA (MERE) MERCK CLEVENOT LAB SA; (MERE) MERCK SA

CYC 25

PI WO 9822210 A1 19980528 (199827)* FR 30p

RW: AT BE CH DE DK ES FI FR GB GR IE IT LU MC NL PT SE

W: AU BR CA CN JP KR US

FR 2755856 A1 19980522 (199827)

AU 9852274 A 19980610 (199843)

EP 885061 A1 19981223 (199904) FR

R: AT BE CH DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE

JP 2000504033 W 20000404 (200027) 25p

US 6242099 B1 20010605 (200133)

EP 885061 B1 20020220 (200214) FR

R: AT BE CH DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE

DE 69710571 E 20020328 (200229)

ADT WO 9822210 A1 WO 1997-FR2095 19971120; FR 2755856 A1 FR 1996-14215 19961121; AU 9852274 A AU 1998-52274 19971120; EP 885061 A1 EP 1997-947105 19971120, WO 1997-FR2095 19971120; JP 2000504033 W WO 1997-FR2095 19971120, JP 1998-505697 19971120; US 6242099 B1 WO 1997-FR2095 19971120, US 1998-101954 19980721; EP 885061 B1 EP 1997-947105 19971120, WO 1997-FR2095 19971120; DE 69710571 E DE 1997-610571 19971120, EP 1997-947105 19971120, WO 1997-FR2095 19971120

FDT AU 9852274 A Based on WO 9822210; EP 885061 A1 Based on WO 9822210; JP 2000504033 W Based on WO 9822210; US 6242099 B1 Based on WO 9822210; EP 885061 B1 Based on WO 9822210; DE 69710571 E Based on EP 885061, Based on WO 9822210

PRAI FR 1996-14215 19961121

AB WO 9822210 A UPAB: 19980709

Microcapsules containing a hydrophobic material inside a wall of chitin, a chitin derivative, or a polyhydroxylated **polyamine**, are new.

Suitable chitin derivatives may be O-carboxy alkyl, O-hydroxyalkyl, or alkyl ethers, N-carboxy alkyl, N-hydroxy alkyl, or N-alkyl derivatives, these being formed from the corresponding **chitosan** derivatives or polyhydroxylated **polyamines** derived from the acetylation or **crosslinking** polyhydroxy **polyamines**. Solar filters suitable for use as the hydrophobic material include cinnamic esters, p-amino benzoic acid and its esters, salicylic esters, etc.

USE - The material is used in cosmetics and pharmaceuticals, especially those containing a sun screen. The microcapsules generally have a particle size of 0.1-30 (especially 0.3-10) μ m and may be formulated

into gels, creams and oils.

ADVANTAGE - The microcapsules are of very small size, impermeable and completely innocuous.

Dwg.0/1

L26 ANSWER 10 OF 13 WPIDS (C) 2002 THOMSON DERWENT
 AN 1993-329469 [42] WPIDS
 CR 1995-178828 [23]
 DNC C1993-145636
 TI Water-swellable, water-insol. modified **polysaccharide** - obtd. by forming a mixt. of water-soluble modified **polysaccharide**, water and a **crosslinking** agent, recovering the **polysaccharide** and heat treating the prod..
 DC A11 A96 D22 F07 P34
 IN QIN, J
 PA (KIMB) KIMBERLY CLARK CORP; (KIMB) KIMBERLY-CLARK WORLDWIDE INC; (KIMB) KIMBERLY-CLARK CORP
 CYC 13
 PI EP 566118 A1 19931020 (199342)* EN 20p
 R: BE DE ES FR GB IT NL SE
 AU 9336949 A 19931021 (199349)
 CA 2076732 A 19931018 (199403)
 JP 06025303 A 19940201 (199409) 13p
 AU 9654638 A 19960801 (199638)
 AU 673158 B 19961031 (199651)
 EP 566118 B1 19970917 (199742) EN 22p
 R: BE DE ES FR GB IT NL SE
 DE 69313908 E 19971023 (199748)
 ES 2107574 T3 19971201 (199803)
 AU 690844 B 19980430 (199829)
 MX 187502 B 19971217 (199936)
 KR 244422 B1 20000201 (200118)
 EP 566118 B2 20011017 (200169) EN
 R: BE DE ES FR GB IT NL SE
 JP 3221963 B2 20011022 (200169) 14p
 ADT EP 566118 A1 EP 1993-106150 19930415; AU 9336949 A AU 1993-36949 19930415; CA 2076732 A CA 1992-2076732 19920824; JP 06025303 A JP 1993-56262 19930317; AU 9654638 A Div ex AU 1993-36949 19930415, AU 1996-54638 19960531; AU 673158 B AU 1993-36949 19930415; EP 566118 B1 EP 1993-106150 19930415; DE 69313908 E DE 1993-613908 19930415, EP 1993-106150 19930415; ES 2107574 T3 EP 1993-106150 19930415; AU 690844 B Div ex AU 1993-36949 19930415, AU 1996-54638 19960531; MX 187502 B MX 1993-1563 19930319; KR 244422 B1 KR 1993-4776 19930326; EP 566118 B2 EP 1993-106150 19930415; JP 3221963 B2 JP 1993-56262 19930317
 FDT AU 673158 B Previous Publ. AU 9336949; DE 69313908 E Based on EP 566118; ES 2107574 T3 Based on EP 566118; AU 690844 B Previous Publ. AU 9654638; JP 3221963 B2 Previous Publ. JP 06025303
 PRAI US 1992-870529 19920417
 AB EP 566118 A UPAB: 20011126
 Method comprises: forming a mixt. comprising a water-soluble modified **polysaccharide**, water and a **cross-linking** agent; recovering the modified **polysaccharide** from the mixt.; and heat treating the prod. at above 80 deg.C to **crosslink** and render it water insol. Also claimed is the **polysaccharide** produced.
 Pref. the modified **polysaccharide** is selected from a carboxylated, sulphonated, sulphated or phosphated derivs. of **polysaccharides** and/or their salts (esp. carboxyalkyl cellulose, mor esp. **carboxymethyl cellulose**). The **crosslinking** agent is an organic cpd. comprising at least two functional gps. capable of reacting with a carboxyl or hydroxyl gp. of a **polysaccharide** (esp. diamines, **polyamines**, diols and/or polyols, more esp. **chitosan** glutamate, type of gelatin,

diethylenetriamine, ethylene glycol, butylene glycol, polyvinyl alcohol, **hyaluronic acid**, polyethylene imine and/or their derivs.. The recovered modified **polysaccharide** is heat-treated to cause **cross-linking** or the **crosslinking** involves self-**crosslinking** through esterification. When the **crosslinking** agent is a diamine or **polyamine**, the recovered modified **polysaccharide** is heat-treated to cause **crosslinking** formed by esterification and amidation.

USE/ADVANTAGE - The polysaccharide produced has good absorption properties similar to the synthetic highly absorptive materials and is suitable for use in personal care absorbent prods. such as diapers, training pants and feminine care prods..
Dwg.0/3

L26 ANSWER 11 OF 13 WPIDS (C) 2002 THOMSON DERWENT

AN 1986-106301 [16] WPIDS

DNN. N1986-078181 DNC C1986-045429

TI Controlling **crosslinking** in aq. **polysaccharide** fracturing fluid - by adding a transition metal **crosslinking** cpd. and a **polyamine** accelerator.

DC A11 A97 E19 H01 Q49

IN PAYNE, K L

PA (BIGT-N) BIG THREE INDS INC

CYC 1

PI US 4579670 A 19860401 (198616)* 8p

PRAI US 1984-593377 19840326; US 1985-794375 19851104

AB US 4579670 A UPAB: 19930922

The **crosslinking** reaction of an aq. fluid used to fracture a subterranean formation is controlled by mixing (a) an aq. soln. of a **polysaccharide** gelling agent (b) a **crosslinking** cmpd. that supplies zirconium, hafnium, chromium or titanium metal ions, and (c) as **crosslinking** rate accelerator a **polyamine**. A composition of matter for initiating **crosslinking** of (a) comprises (b) and (c).

Crosslinking is controlled by adding to (a) a transition metal crosslinking agent and a crosslinking rate controller, which may be an accelerator or a retarder (e.g. glyoxal or triethanolamine)

(a) is a soln. (e.g. 0.36-0.72 wt.%) of guar gum, hydroxypropyl guar, carboxymethyl hydroxypropyl guar, cationic guar or **carboxymethyl** hydroxy ethyl **cellulose**. (b) is a complex of the metal with a beta diketone, alkanolamine, hydroxyamine, ethoxylated alcohol, lactone or **polyacrylic acid**; it is e.g. tetramethyl orthotitanate made water-soluble with one of these ligands, e.g. triethanolamine; concn. is 0.03-0.07 vol. (c) is e.g. tetramethylenediamine or diethylenetriamine; concn. is 0.001-0.06 vol. A propping agent is added to the hydrated gel (a) before addn. of (b) and (c); concn. of (b) and (c) may be controlled continuously in response to other conditions to control **crosslinking** rate. Other additives, e.g. alcohols, surfactants, biocides, pH control agents, oxygen scavengers and salts may be present.

ADVANTAGE - The rate of crosslinking is readily controlled, so that friction loss in or prior to entry to the well casing is minimised.

0/6

L26 ANSWER 12 OF 13 WPIDS (C) 2002 THOMSON DERWENT

AN 1981-42102D [24] WPIDS

TI Hair treatment compsn. - contg. amphoteric polymer contg. basic nitrogen and acid gps., and cationic polymer contg. **poly amine** or quat. ammonium gps..

DC A96 D21

IN CAUWET, D; DUBIEF, C; FIQUET, C; FOURCADIER, C; GROLLIER, J; GROLLIER, J F

PA (OREA) L'OREAL SA

CYC 13

PI BE 886371 A 19810527 (198124)*
 GB 2063671 A 19810610 (198124)
 DE 3044738 A 19810619 (198126)
 NL 8006459 A 19810701 (198129)
 SE 8008332 A 19810629 (198129)
 FR 2470596 A 19810612 (198131)
 JP 56092812 A 19810727 (198137)
 DK 8005075 A 19810831 (198139)
 GB 2063671 B 19831221 (198351)
 CA 1162359 A 19840221 (198413)
 CH 651749 A 19851015 (198547)
 DE 3051084 A 19870813 (198733)
 IT 1129378 B 19860604 (198744)
 SE 8800403 A 19880208 (198824)
 SE 8800632 A 19880224 (198824)
 DE 3051084 C 19891102 (198944)
 SE 461130 B 19900115 (199005)
 AT 8005808 A 19900215 (199011)
 US 4996059 A 19910226 (199111) 16p
 JP 03014805 B 19910227 (199112)
 SE 8902853 A 19910301 (199117)
 JP 03086810 A 19910411 (199121)
 DK 9101459 A 19910812 (199226)
 JP 04060570 B 19920928 (199243) 20p
 AT 397913 B 19940615 (199424)
 DE 3044738 C2 19940915 (199435) 24p
 US 5958392 A 19990928 (199947)

ADT DE 3044738 A DE 1980-3051084 19801127; US 4996059 A US 1990-498490
 19900326; JP 03014805 B JP 1980-167341 19801127; DK 9101459 A Div ex DK
 1980-5075 19801128, DK 1991-1459 19910812; JP 04060570 B Div ex JP
 1980-167341 19801127, JP 1990-194680 19801127; AT 397913 B AT 1980-5808
 19801127; DE 3044738 C2 DE 1980-3044738 19801127; US 5958392 A Cont of US
 1980-210620 19801126, Cont of US 1983-517565 19830728, Cont of US
 1990-498490 19900326, Cont of US 1990-623084 19901206, Cont of US
 1992-877371 19920429, US 1995-487479 19950607

FDT JP 04060570 B Based on JP 03086810; AT 397913 B Previous Publ. AT 8005808;
 DE 3044738 C2 Div in DE 3051084; US 5958392 A Cont of US 4996059

PRAI FR 1979-29318 19791128

AB BE 886371 A UPAB: 19991122

Hair treatment compsns. are made contg., in a suitable medium for application to the hair, (a) at least one amphoteric polymer with units A and B in the polymer chain, where A is a monomer unit from a monomer contg. at least one basic N atom and B is a unit derived from a monomeric acid contg. one or more carboxylic or sulphonic gps.; or A and B together may be a gp. derived from a zwitterionic carboxybetaine monomer; or A and B may be a cationic polymeric chain contg. sec., tert. or quat. amine gps. in which at least one of the amine gps. carries a carboxyl or sulphonic gp. bound via a hydrocarbon gp.; or A and B form part of a polymer chain with ethylene, alpha,beta-dicarboxylic gps., one of the carboxyl gps. having been reacted with a **polyamine** carrying one or more prim. or sec. amine gps., and (b) at least one cationic polymer of the **polyamine** or quat. polyammonium type contg. amine or ammonium gps. in the polymer chain or bound to it.

The compsns. are useful in shampoos, lotions, etc., to provide excellent cosmetic properties to the hair, especially softness, freedom from tangling, good body and freedom from static electricity. The compsns. have a good conditioning action on the hair during shampooing, bleaching, dyeing, permanent waving, etc.

L26 ANSWER 13 OF 13 WPIDS (C) 2002 THOMSON DERWENT

AN 1978-57728A [32] WPIDS

TI Metal ion selectively adsorbing resin - comprising macromolecular acid and **poly amine**.

DC A97 J01
 PA (NIRA) UNITIKA LTD
 CYC 1
 PI JP 53076187 A 19780706 (197832)*
 PRAI JP 1976-152436 19761217
 AB JP 53076187 A UPAB: 19930901
 Method comprises reacting macromolecular acid with metal ion in a solvent, adding polyamide to the resulting reaction prod., thereby **cross-linking** the metal ion between the acid and the polyamide to obtain a solid type complex compound, and dissolving out the metal ion from the complex compound with mineral acid to obtain the metal ion selectively adsorbing resin. The metal is Zn, Co, Ni, Cu, Fe, Ag, Mg or Cd. the macromolecular acid is polycarboxylic acid, **polyacrylic acid**, or polymethacrylic acid. The solvent is **dimethyl formamide**, dimethyl sulphoxide, dimethyl acetoamide, N-methyl pyrrolidone or hexamethyl phosphoamide.

L27 ANSWER 1 OF 16 WPIDS (C) 2002 THOMSON DERWENT
 AN 2002-519057 [55] WPIDS
 DNN N2002-410923 DNC C2002-146734
 TI New biodegradable, blood-compatible biopolymer comprising crosslinked polyubiquitin, forming hydrogels or matrices useful e.g. as wound dressings, drug delivery vehicles or enzyme biosensors.
 DC A96 B04 P34
 IN BOSSE, M
 PA (VIRI-N) VIRIDIS BIOTECH INC
 CYC 96
 PI WO 2001091814 A2 20011206 (200255)* EN 75p
 RW: AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW MZ
 NL OA PT SD SE SL SZ TR TZ UG ZW
 W: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK
 DM DZ EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR
 KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT RO RU
 SD SE SG SI SK SL TJ TM TR TT TZ UA UG US UZ VN YU ZA ZW
 AU 2001067181 A 20011211 (200255)
 ADT WO 2001091814 A2 WO 2001-CA784 20010529; AU 2001067181 A AU 2001-67181
 20010529
 FDT AU 2001067181 A Based on WO 200191814
 PRAI US 2000-207325P 20000530
 AB WO 200191814 A UPAB: 20020829
 NOVELTY - A novel biopolymer (A) comprises a 3-dimensionally crosslinked mixture of ubiquitin (I) (a small protein having a sequence of 76 amino acids given in the specification) and at least one crosslinking agent (II).
 DETAILED DESCRIPTION - INDEPENDENT CLAIMS are included for:
 (i) preparation of (A);
 (ii) a biopolymer comprising (I), a solvent for (I) and at least one (II); and
 (iii) the use of (I) in the preparation of (A).
 ACTIVITY - Hemostatic; vulnerary.
 MECHANISM OF ACTION - None given in the source material.
 USE - (A) form hydrogels or matrices useful as wound dressings, biodegradable vehicles for oral, parenteral or topical drug delivery, enzyme biosensors for detection of nucleic or peptide molecules, in situ hybridization systems (e.g. for use in diagnostic assays), in vitro model systems for research, hemostatic agents, prostheses or implants (possibly containing cell cultures).
 ADVANTAGE - (A) are biodegraded to non-toxic, endogenous materials; have good blood compatibility and low immunogenicity and can be prepared with a wide range of controllable properties (e.g. hydrophilicity, charge,

degree of crosslinking, drug uptake and degradation/release kinetics).
Dwg.0/18

TECH

UPTX: 20020829

TECHNOLOGY FOCUS - POLYMERS - Preferred Ubiquitins: (I) contains at least one ubiquitin unit or ubiquitin units in tandem, preferably 2-25 (especially 7) ubiquitin units. The ubiquitins may be recombinant or naturally occurring ubiquitins, or their mutants, analogs, fragments or derivatives.

Preferred **Crosslinking Agents**: (II) is a photoreactive or thermoreactive **crosslinking agent** specifically containing **carboxy** (or derivative, e.g. ester, halide, azide or hydrazide), sulfonic acid derivative, semicarbazide, thiosemicarbazide, aldehyde, ketone, alcohol, chloride, bromide, iodide, thio, primary, secondary or tertiary amine, hydrazide, epoxide or maleimide reactive groups. Preferably (II) is selected from polyethylene glycols or their derivatives (most preferred), **polyamines**, amines, polyvinyl compounds, polystyrene, epoxy compounds, silicones, proteins (specifically keratin, collagen, elastin, actin, myosin, fibrinogen, silk or gelatin), **polysaccharides** (specifically cellulose, amylose, **hyaluronic acid**, chitin, **chitosan**, xylan or mannan), silica, p-azidobenzoyl hydrazide, N-5-azido-2-nitrobenzoyloxy-succinimide, disuccinimidyl glutamate, dimethyl pimelimidate dihydrochloride, dimethyl suberimide dihydrochloride, dithio-bis-(succinimidyl propionate), disuccinimidyl suberate, bis-(sulfosuccinimidyl suberate), 1-ethyl-3-(3-dimethylaminopropyl)-carbodiimide hydrochloride, isocyanates, aldehydes (specifically glutaraldehyde or paraformaldehyde) or their derivatives, In particular (II) is a polyethylene glycol derivative of formula $X-(CH_2CH_2O)_n-X$ (II'), especially an activated bifunctionalized polyethylene oxide.

n = at least 1;

X = covalent bond, group capable of reacting with an amino acid, R or OR (with the O bonded to the polyethylene oxide); and

R = methylene, ethylene, propylene, phenylene or phenylene carbamate (optionally substituted by at least one alkyl, aryl, halo, NO₂, oxo, COOH, OH, thio, sulfonate or phosphate groups).

Preparation: Claimed preparation of (A) involves mixing a solution of (I) with at least one (II) and inducing polymerization for sufficient time to cause **crosslinking**.

L27 ANSWER 2 OF 16 WPIDS (C) 2002 THOMSON DERWENT

AN 2002-303719 [34] WPIDS

DNC C2002-088237

TI Hydrogel product e.g. as adsorbent for manufacturing pure substances, comprises water-insoluble support matrix substituted with soluble polymer materials chemically bound to matrix.

DC A97 B04 D16 J01 J04 M25

IN ERSSON, B; PORATH, J

PA (ERSS-I) ERSSON B; (PORA-I) PORATH J

CYC 96

PI WO 2001094007 A1 20011213 (200234)* EN 32p

RW: AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW MZ
NL OA PT SD SE SL SZ TR TZ UG ZW

W: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK
DM DZ EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR
KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT RO RU
SD SE SG SI SK SL TJ TM TR TT TZ UA UG US UZ VN YU ZA ZW

AU 2001064486 A 20011217 (200234)

SE 516594 C2 20020205 (200234)

SE 2000002152 A 20011209 (200234)

ADT WO 2001094007 A1 WO 2001-SE1278 20010607; AU 2001064486 A AU 2001-64486
20010607; SE 516594 C2 SE 2000-2152 20000608; SE 2000002152 A SE 2000-2152
20000608

FDT AU 2001064486 A Based on WO 200194007

PRAI US 2000-209999P 20000608; SE 2000-2152 20000608

AB WO 200194007 A UPAB: 20020528

NOVELTY - A hydrogel product having water-insoluble support matrix substituted with soluble polymer materials chemically bound to the matrix, and crosslinked polymers, is new. Optional polymer materials are built-in in the synthesized matrix-polymer complex by different crosslinks. The polymer material is internally crosslinked. The matrix is optionally present as acid- and base-stable residue.

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is also included for production of a hydrogel product, comprising:

(a) incorporating polyalkyleneimine chain to a support matrix, which is activated and crosslinked to obtain an internal crosslink;

(b) optionally coupling the product to new alkylene amines, which is/are activated; and

(c) optionally adding further crosslinking agents.

USE - The product is used as adsorbent for manufacturing pure substances e.g. ultra-fine water, in environmental techniques for removing undesirable metal ions from leachate and extracting metals, in metallurgical industry for removing or concentrating metal ions, as support matrix in solid phase synthesis of peptides, and for fixing catalysts e.g. palladium or enzymes.

ADVANTAGE - The product selectively binds different materials e.g. metals, and concentrates poisonous compounds. It retains its original shape even after a powerful chemical influence e.g. elution, at a treatment using strong acid e.g. 20 % sulfuric acid, saturated periodate solution at pH 7, or sodium boron hydride. The product is cheap. It allows economical recycling of small amounts of valuable metals from large waste quantities.

Dwg.0/0

TECH

UPTX: 20020528

TECHNOLOGY FOCUS - POLYMERS - Preferred Product: The hydrogel product is of formula $P-Y-X1A1(Xz)-Xn$ or $P-Y-X1A1-X2A2-...-XiAi(Xz)-Xn$.

It has an arbitrary shape, preferably spherical, thread shape, membrane shape, porous, or spongy.

P = support matrix;

Y = N, S, or O bridge;

X1, Xi, Xn, Xz = di-, tri-, or polyfunctional **crosslinking** agent;

A1 = water-soluble polymer material, preferably **crosslinked** residue of amine;

n, i = 2 or more; and

z = 0 or more.

Preferred Matrix: The support matrix consists of a **polysaccharide**, polygalactane, agar, agarose or its derivative, laminarine, cellulose or its derivative, **crosslinked** dextran or its derivative, starch or its derivative, or protein or its combination with **polysaccharide**.

Preferred Method: The matrix is degraded to form an acid- and base-stable residue. The activation via **polyamine** units involves incorporating non-saturated substituents preferably alkenyl, most preferably allyl, at the primary and/or secondary amino groups; desaturating the non-saturated substituents with halogen water, preferably bromide water; and coupling with amines in an alkaline environment.

Preferred Material: The water-soluble polymer material consists of residues of polyalkylene amine, preferably oligo or polyethylene amine, or residues of an amine of formula $NHR1R2$.

R1, R2 = H, alkyl, aromatic or heterocyclic alkyl, **carboxy** alkyl, or amino acid, preferably polyalkylene diamine.

TECHNOLOGY FOCUS - ORGANIC CHEMISTRY - Preferred Agents: The crosslinking agent is halohydrin, epihalohydrin, bishalohydrin, divinylsulfon, di- or polyepoxide, triazine, halodiazine, halotriazine, di-, tri-, or polyfunctional aldehyde, preferably glutaraldehyde or polymerized glutaraldehyde, di-, tri-, or polyaziridine, halogen-alkylene-halogen

preferably ethylene bromide, or halogen cyanurate.

Preferred Parameters: At least one crosslink is broken open while other crosslinks is/are left intact.

L27 ANSWER 3 OF 16 WPIDS (C) 2002 THOMSON DERWENT

AN 2002-256524 [30] WPIDS

DNC C2002-076365

TI Polyelectrolyte complex use in textile detergents, comprising cationic condensate of amine such as imidazole with **crosslinker** such as epichlorohydrin and polyanionic compound such as **polyacrylic acid**.

DC A14 A25 A26 A87 A97 D25 F06

IN BOECKH, D; HILDEBRANDT, S; KLUGE, M; NOERENBERG, R; PANANDIKER, R K; RANDALL, S L; WERTZ, W C

PA (BADI) BASF AG

CYC 23

PI WO 2001085819 A2 20011115 (200230)* DE 20p

RW: AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE TR

W: CA JP MX US

ADT WO 2001085819 A2 WO 2001-EP5230 20010509

PRAI US 2000-202937P 20000509

AB WO 200185819 A UPAB: 20020513

NOVELTY - Polyelectrolyte complexes comprises:

(a) optionally quaternized cationic condensates of (i) amines with (ii) crosslinkers such as epihalohydrins, bishalohydrins, alkylene polyhalides or polyepoxides; and

(b) anionic compounds with at least 3 anionic groups.

DETAILED DESCRIPTION - Polyelectrolyte complexes of cationic and anionic polymers, comprises:

(a) cationic condensates of:

(i) amine(s) selected from linear or branched alkylamines, cycloalkylamines, alkoxyamines, aminoalcohols, cyclic amines with at least one ring nitrogen, alkylenediamines, polyether-diamines, polyalkylene-polyamines, mixtures of these amines with amino-acids or their salts, reaction products of these amines with anionic group-containing alkylating agents (0.04-0.06 mol per mol NH groups in the amine), or mixtures of these; and

(ii) a crosslinker selected from epihalohydrins, bis-halohydrins of diols, polyalkylene glycols or polytetrahydrofurans, alkylene di- or trihalides, bis-, tris- or tetrakis-epoxides and/or mixtures of these, and/or quaternized condensates of (i) and (ii), and

(b) anionic compounds with at least 3 anionic groups, with a charge ratio of (anionic):(cationic) polymer = 0.01-20.

An INDEPENDENT CLAIM is also included for a method for the production of these complexes by mixing (i) with (ii).

USE - In detergents or additives for finishing or washing textiles.

ADVANTAGE - New complexes in which the cationic component is less affected by anionic compounds such as surfactants than when the cationic component is used alone. This results in treated textiles with a better appearance (color etc.) and better (micro)mechanical properties such as hardness, flexibility and tensile strength (of filaments, fibres or fabric).

Dwg.0/0

TECH

UPTX: 20020513

TECHNOLOGY FOCUS - ORGANIC CHEMISTRY - Preferred Components: Component (i) comprises piperazine, 1-(1-25C alkyl)-piperazines, 1,4-di-(1-25C alkyl)-piperazines, 1,4-bis-(3-aminopropyl)-piperazine, 1-(2-aminoethyl)-piperazine, 1-(2-hydroxy-(2-25C alkyl))-piperazines, imidazole, (1-25C alkyl)-imidazoles, aminoalcohols, linear, branched or cyclic alkylamines, other alkylenediamines, polyether-diamines and/or polyalkylenepolyamines, especially piperazine, 1-(2-hydroxyethyl)-piperazine, 1-(2-aminoethyl)-piperazine, imidazole and/or (1-3C alkyl)-imidazoles.

Component (ii) comprises epichlorohydrin, bis-halohydrins of 2-8C diols, bis-glycidyl ethers of 2-18C diols or polyalkylene glycols, bis-epoxybutane and/or alkylene dihalides, especially 1,2-dichloroethane, 1,2- or 1,3-dichloropropane, 1,4-dichlorobutane, epichlorohydrin, bis-chlorohydrin ethers of polyalkylene glycols or poly-THF, and/or bis-epoxybutane.

Condensates of (i) and (ii) may be quaternized with (iii) alkyl halides, epoxides, chloro-acetic or -propionic acid, 2-chloroethanesulfonic acid, epoxysuccinic acid, propanesulfone, 3-chloro-2-hydroxypropanesulfonic acid, dimethyl sulfate and/or diethyl sulfate, or the tert. nitrogen may be oxidized to the N-oxide. Component (b) comprises citric, butane-tetracarboxylic, cyclopentane-tetracarboxylic, sulfoisophthalic or iminodisuccinic acid, anionic polymers of mono-unsaturated 3-10C carboxylic acids, polymers of monomers with sulfonic acid or phosphonic acid groups, or condensates of aspartic acid.

TECHNOLOGY FOCUS - Preferred Condensates: Polycationic condensates (a) of (i) piperazine and/or imidazole and (ii) epichlorohydrin, with a mol. wt. (Mw) of 500-1 million (preferably 1000-100000) and a charge density of 0.1-8 mequiv/g, in which at least 80% of the NH groups are quaternized or in the form of N-oxide.

Preferred Complexes: Complexes of (a) a cationic condensate of imidazole and epichlorohydrin and (b) an anionic polymer of acrylic acid or copolymer of acrylic and maleic acid.

Preferred Method: Complexes are obtained by mixing a 1-60 wt% aqueous solution of (a) with a 1-60 wt% aqueous solution of (b), preferably by turbulent mixing or combined spray mixing.

L27 ANSWER 4 OF 16 WPIDS (C) 2002 THOMSON DERWENT

AN 2001-475591 [51] WPIDS

DNC C2001-142520

TI Multi-component ion exchange resin for removing contaminants from aqueous fluid, comprises dry granules containing basic resin(s) dispersed in continuous phase of acidic resin(s), and have specific property.

DC A91 D15 E19 J01 J04

IN BEIHOFFER, T W; MITCHELL, M A; SPINDLER, R

PA (BADI) BASF AG; (AMCO-N) AMCOL INT CORP

CYC 93

PI WO 2001030496 A1 20010503 (200151)* EN 105p

RW: AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW MZ
NL OA PT SD SE SL SZ TZ UG ZW

W: AE AG AL AM AT AU AZ BA BB BG BR BY CA CH CN CR CU CZ DE DK DM DZ
EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK
LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT RO RU SD SE SG
SI SK SL TJ TM TR TT TZ UA UG UZ VN YU ZA ZW

AU 2000053138 A 20010508 (200153)

EP 1230027 A1 20020814 (200261) EN

R: AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT
RO SE SI

ADT WO 2001030496 A1 WO 2000-US15145 20000531; AU 2000053138 A AU 2000-53138
20000531; EP 1230027 A1 EP 2000-938047 20000531, WO 2000-US15145 20000531

FDT AU 2000053138 A Based on WO 200130496; EP 1230027 A1 Based on WO 200130496

PRAI US 1999-161856P 19991027

AB WO 200130496 A UPAB: 20020313

NOVELTY - A multi-component ion exchange resin comprises dry granules comprising at least one micro-domain of basic resin(s) dispersed in a continuous phase of acidic resin(s). The granules have an absorbance under no load of 25 g or less of tap water/g of granules and after hydration have a volume not more than 10 times greater than volume of granules prior to hydration.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for the following:

(i) the removal of contaminants from aqueous fluid which involves flowing the fluid over ion exchange bed comprising ion exchange resin

granules;

(ii) the removal of hardness and alkalinity from water; and

(iii) a water purification cartridge which comprises a housing having an inlet and an outlet for water, and multi-component ion exchange resin.

USE - For removing contaminants such as metal ions, sulfate ions and/or nitrate ions from aqueous fluid and used in water purification cartridge for removing hardness and alkalinity (all claimed). The resin is used for purifying sugar, recovery of transition metals, recovery of proteins from fermentation broths, agricultural byproducts and in pharmaceutical separation technology.

ADVANTAGE - The ion exchange granules have soft center or core, and hard exterior therefore, it results in good mechanical integrity and stability. The resin has high degree of internal and surface cross-linking, therefore it cannot absorb large amount of fluid and swell is prevented.

Dwg.0/6

TECH

UPTX: 20020313

TECHNOLOGY FOCUS - POLYMERS - Preferred Resin: The basic resin comprises strong basic resin or weak basic resin, and acidic resin comprises a strong acidic resin and/or a weak acidic resin. The basic resin is selected from poly(vinylamine), poly(dialkylaminoalkyl (meth)-acrylamide), polymer prepared from the ester analog of N-(dialkylamino(meth)acrylamide), polyethylenimine, poly(vinylguanidine), poly(allylguanidine), poly(allylamine), poly(dimethyldialkylammonium hydroxide), guanidine-modified polystyrene, quaternized polystyrene, quaternized poly(meth)-acrylamide, its ester analog and/or poly(vinyl alcohol-co-vinylamine), preferably poly(vinylamine), poly(dialkylaminoalkyl (meth)-acrylamide), poly(vinylguanidine) and/or polyethylenimine. The acid resin is chosen from **polyacrylic acid**, hydrolyzed starch-acrylonitrile graft copolymer, starch-acrylic acid graft copolymer, saponified vinyl acetate-acrylic ester copolymer, hydrolyzed acrylonitrile polymer, hydrolyzed acrylamide copolymer, ethylene-maleic anhydride copolymer, isobutylene-maleic anhydride copolymer, poly(vinylphosphonic acid), poly(vinylsulfonic acid), poly(vinylphosphoric acid), poly(vinylsulfuric acid), sulfonated polystyrene, poly(aspartic acid) and/or poly(lactic acid), preferably **polyacrylic acid**.

The granules of the multi-component ion exchange resin alternately comprises (i) at least one micro-domain of acidic resin(s) dispersed in continuous phase of basic resin(s), (ii) at least one micro-domain of basic resin(s) and at least one microdomain of acid resin(s) dispersed in continuous phase of matrix resin, or (iii) at least one micro-domain of basic resin(s) in contact with at least one microdomain of acidic resin(s) or vice versa.

Preferred Composition: The weight ratio of acidic resin to basic resin is 90:10-10:90. The total amount of basic resin and acidic resin in ion exchange resin is 50-100 wt.%. The basic resin is surface **cross-linked** up to 2 wt.% of resin of surface **cross-linking** agent.

Preferred Properties: The particle diameter of resin is 1-10000 microns. The granules preferably have absorbance under no load of 1-5 g of tap water/g of granules. The volume of hydrated granule is preferably not more than 5 times greater than the volume of granules prior to hydration. The basic resin is annealed at 65-185 degrees C for 20 minutes to 16 hours. The basic resin and acidic resin have DN of 0-100%, respectively. The ion exchange resin contains at least 1000 ppm, preferably 10000-20000 ppm of **cross-linking** agent.

TECHNOLOGY FOCUS - ORGANIC CHEMISTRY - Preferred Cross-linking Agent: The surface cross-linking agent of basic resin is selected from:

(a) dihalide or disulfonate ester of formula $Y-(CH_2)_p-Y$, where $p = 2-12$ and $Y = \text{halo, tosylate, mesylate, alkyl sulfonate ester or aryl sulfonate ester}$;

(b) multi-functional aziridines;

- (c) multi-functional aldehydes, and acetals and bisulfites;
- (d) halohydrins;
- (e) multi-functional epoxy compounds, e.g. ethylene glycol diglyceryl ether;
- (f) multi-functional **carboxylic** acids containing 2-12C, and methyl and ethyl esters, acid chlorides, and anhydride derivative such as malonic acid, glutaric acid;
- (g) organic titanate;
- (h) melamine resin;
- (i) hydroxymethyl urea;
- (j) multi-functional isocyanate; and/or
- (k) hydroxyalkyl amide.

The surface cross-linking agent for acidic resin is selected from:

- (a) a polyhydroxy compound such as glycol, glycerol;
- (b) metal salts;
- (c) a quaternary ammonium compound;
- (d) a multi-functional epoxy compound;
- (e) alkylene carbonate;
- (f) polyaziridine such as 2,2-bishydroxy methyl butanol tris(3-(1-aziridine propionate));
- (g) haloepoxy such as epichlorohydrin;
- (h) **polyamine** such as ethylene diamine;
- (i) polyisocyanate e.g. 2,4-toluene diisocyanate;
- (j) hydroxyalkyl (meth)acrylate;
- (k) amino alkyl (meth)acrylate; and/or
- (l) hydroxyalkyl amide of formula (I), (Ia), (Ib) or (Ic).

$$\text{HO}(\text{C}(\text{R}_2)_2)_p\text{-N}(\text{R}_1)\text{-C(=O)-}n\text{-C(=O)-N}(\text{R}_1)\text{-(C}(\text{R}_2)_2)_p\text{OH} \quad (\text{I})$$

$$\text{HO-CH}(\text{R}_2)(\text{CH}_2)_q\text{N}(\text{R}_1)\text{-C(=O)-}(\text{CH}_2)_m\text{-C(=O)-N}(\text{R}_1)\text{-(CH}_2)_q\text{-CH}(\text{R}_2)\text{-OH} \quad (\text{Ia})$$

$$\text{HO-CH}(\text{R}_2)(\text{CH}_2)_q\text{N-C(=O)-}(\text{CH}_2)_m\text{-C(=O)-N}((\text{CH}_2)_q\text{CH}(\text{R}_2)\text{OH})_2 \quad (\text{Ib})$$

A = bond, H, (un)saturated 1-60C alkyl, aryl, tri-1-4C alkylene amine or unsaturated radical containing ethylenic group(s);
R1 = H, 1-5C (hydroxy)alkyl;
R2 = H or 1-5C alkyl, or joined together with carbon atoms to form cycloalkyl ring;
p and p' = 1-4;
n = 1 or 2;
n' = 0-2;
m = 0-8;
q and q' = 1-3;
R1 (in formula (Ia)) = H or 1-5C hydroxy alkyl;
R2 on beta-carbon (in formula (Ia)) = H and the other is H or 1-5C alkyl;
both R2 (in formula (Ib)) = H or methyl; and
R3 = 1-4C alkylene or arylene.

Preferred Monomer: 47 compounds such as acrylic acid, fumaric anhydride, 2-vinyl-4-ethyl-benzene are claimed as monomer of acidic resin. The basic resin and/or acid resin contain one or more optional vinyl monomer selected from ethylene, propylene, isobutylene, vinyl acetate, methyl vinyl ether and styrenic compound of formula (II).

R = H or 1-6C alkyl and phenyl ring is optionally substituted with 1-4C alkyl or hydroxy groups, n-propylacrylate, n-butylacrylate, (methyl) methacrylate, ethyl (meth)acrylate, isopropyl (meth)acrylate, styrene, alpha-methyl styrene, p-methyl styrene and/or t-butyl styrene.

TECHNOLOGY FOCUS - INORGANIC CHEMISTRY - Preferred Ion: The contaminants comprises metal ions such as lead and/or copper ions, sulfate ions and/or nitrate ions. The ion exchange bed further comprises powdered activated carbon, zeolite, polystyrene adsorbent and/or polyacrylate adsorbent.

TI Multicomponent superabsorbent particle, comprises microdomain of basic water-absorbing resin in contact with microdomain of acidic water-absorbing resin.

DC A18 A23 A96 A97 D15 D22 P32

IN BEIHOFFER, T W; MITCHELL, M A; RAUSCH, K A

PA (BEIH-I) BEIHOFFER T W; (MITC-I) MITCHELL M A; (RAUS-I) RAUSCH K A

CYC 1

PI US 2001001312 A1 20010517 (200132)* 20p

ADT US 2001001312 A1 CIP of US 1997-974125 19971119, CIP of US 1998-120674 19980722, CIP of US 1998-179553 19981028, US 2000-742593 20001221

PRAI US 2000-742593 20001221; US 1997-974125 19971119; US 1998-120674 19980722; US 1998-179553 19981028

AB US2001001312 A UPAB: 20020528

NOVELTY - A multicomponent superabsorbent particle comprising about 20 - 40 wt.%, of one or more microdomains of at least one basic water-absorbing resin in contact with about 60 - 80 wt.%, of one or more microdomains of at least one acidic water-absorbing resin.

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is also included for a superabsorbent material comprising: (a) multicomponent superabsorbent particles; and (b) particles of a second water-absorbing resin selected from the group consisting of an acidic water-absorbing resin, a basic water-absorbing resin, and mixtures.

USE - Multicomponent superabsorbent particles useful in sanitary goods, hygienic goods, wiping cloths, water-retaining agents, dehydrating agents, sludge coagulants, disposable towels, mats, thickening agents and release control agents for chemicals.

ADVANTAGE - Multicomponent superabsorbent particles contains a low weight molecular basic resin exhibiting exceptional water absorption and retention properties. Multicomponent superabsorbent particles absorb liquids quickly, demonstrate good fluid permeability and conductivity, and have a high gel strength.

Dwg.0/8

TECH UPTX: 20010611

TECHNOLOGY FOCUS - POLYMERS - Preferred Particle: The basic resin comprises a strong basic resin, and the acidic resin comprises a strong acidic resin, a weak- acidic resin, or a mixture, preferably the basic resin comprises a weak-basic resin, and the acidic resin comprises a strong acidic resin, a weak acidic resin, or a mixture. The particle has a weight ratio of acidic resin to basic resin of about 75:25 - 65:35, preferably 70:30 - 60:40. The particle has a mole ratio of basic resin to acidic resin of about 0.5:1 - 1:1, preferably 0.6:1 - 0.8:1. The particle contains about 50 - 100 wt.% of basic resin plus acidic resin. The particle is annealed at a temperature of 60 - 200 degreesC for about 20 - 120 minutes. The particle is surface **crosslinked** with up to about 10,000 ppm of a surface **crosslinking** agent selected from a poly hydroxy compound, a metal salt, a quaternary ammonium compound, a P-hydroxyalkylamide, a multifunctional epoxy compound, an alkylene carbonate, a polyaziridine, a haloeпоxy, a **polyamine**, a polyisocyanate, and mixtures. The basic resin is lightly **crosslinked** and has about 75 - 100% basic moieties present in a free base form. The particle where at least 6% of the monomer units comprising the basic resin are basic monomer units. The acidic resin contains **carboxylic** acid, sulfonic acid, sulfuric acid, phosphoric acid, or phosphoric acid groups, or a mixture. The acidic resin is lightly **crosslinked** and has 75 - 100% acid moieties present in the free acid form, and where at least 10% of the monomer units comprising the acidic resin are acidic monomer units. The particle further comprising at least one microdomain of a matrix resin in an amount of 0 - 50 wt.% of the particle. The particle is in the form of a bead, a granule, a flake, an interpenetrating polymer network, a fiber, an agglomerated particle, a laminate, a powder, a foam, or sheet. The particle having an absorption under load at 0.7 psi of at least about 10 grams of 0.9% saline per gram of particles, after one hour, and at least about 10 grams of 0.9%

saline per gram of particles after three hours. The particle having a saline flow conductivity value of at least 150×10^{-7} cm³sec/g, an initial performance under pressure capacity rate of greater than 50 g/g/hr^{1/2}, and a free swell rate greater than 0.35 g/g/sec.. Preferred Components: The basic resin is selected poly(vinylamine), a polyethylenimine, a poly(allylguanidine), a poly(allylamine), a poly(diallylamine), polyazetidene, and mixtures. The acidic resin is selected from **polyacrylic acid**, a hydrolyzed starch-acrylonitrile graft copolymer, a starch acrylic acid graft copolymer, a saponified vinyl acetate acrylic ester copolymer, a hydrolyzed acrylonitrile polymer, a hydrolyzed acrylamide copolymer, an ethylene-maleic anhydride copolymer, an isobutylene-maleic anhydride copolymer, a poly(vinylphosphonic acid), a poly(vinylsulphonic acid), a poly(vinylphosphoric acid), a poly(vinylsulfuric acid), a sulfonated polystyrene, a poly(aspartic acid), a poly(lactic acid), and mixtures.

L27 ANSWER 6 OF 16 WPIDS (C) 2002 THOMSON DERWENT

AN 2001-253076 [26] WPIDS

DNC C2001-076150

TI Manufacture of coating material for sewn materials, comprises adhesive, clay regulator, workability improving agent and color phase regulator.

DC A81 F06 G02 G03

PA (YUKE-N) YUKEN CHEM KK

CYC 1

PI JP 2001049581 A 20010220 (200126)* 8p

ADT JP 2001049581 A JP 1999-222277 19990805

PRAI JP 1999-222277 19990805

AB JP2001049581 A UPAB: 20010515

NOVELTY - The coating material contains adhesive, clay regulator, workability improving agent and color phase regulator.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for the following: (i) Manufacture of coating material involves mixing adhesive, viscosity regulator, workability improving agent, color phase regulator, flexible smoothing agent, stripping agent, coloring agent, oxidizing agent, water repellent, ceramics, metal powder or metal deposited substance, at normal temperature; (ii) Processing of sewn materials involves applying the coating material containing adhesive, viscosity regulator, workability improving agent, color phase regulator, flexible smoothing material, discharge material, color development material, oxidation material, water repellent material, ceramics, metal powder or metal deposited substance on sewn materials by roller coating or spray coating followed by drying and heating under pressure.

USE - For sewn materials (claimed) such as jeans.

ADVANTAGE - The coating material forms a clear skin layer on the sewn materials (fiber). Thus, the color, glossiness and texture of fiber are improved effectively. The fiber with the coating material, has excellent wash-resistance, crease resistance, high stretchability and workability. Dwg.0/0

TECH UPTX: 20010515

TECHNOLOGY FOCUS - ORGANIC CHEMISTRY - Preferred Composition: The adhesive is at least one substance selected from aqueous solution and emulsion of (i) starch, natural rubber, plant protein and sea weed (as natural type adhesive), (ii) egg protein, casein, gelatin and blood protein (as adhesive paste derived from animal), (iii) bentonite and kaolin (as mineral type adhesive paste), (iv) konjak mannan powder (as natural adhesive paste), (v) ether group methyl cellulose, hydroxyethyl cellulose, **carboxy methyl cellulose** and ester group acetyl cellulose (as cellulose derivative adhesive-paste), (vi) ether group **carboxymethyl starch**, hydroxyethyl **starch**, ester group acetyl starch and phosphate starch (as processed starch adhesive paste), (vii) alpha starch, oxidized starch, cation starch and baking starch as starch property adhesive paste, (viii) shiratsu gum, locust bean gum, guar gum, propylene glycol arginate and

tamarind seed (as processed natural rubber adhesive paste), (ix) aliphatic polyether polyurethane resin, aliphatic polyester polyurethane resin, aromatic polyether polyurethane resin, dimethyl polysiloxane, modified polysiloxane, fluorine compound, nylon, polyester resin, butadiene group synthetic rubber, alkyd resin, polyethylene resin, polyvinyl alcohol, partially saponified polyvinyl acetate, polyvinyl butyral resin, polyvinyl acrylate resin, polyethylene oxide group polymer and maleic acid group polymer. The modified silicone having alkoxy group, amino group, epoxy group or vinyl group, aqueous solution or emulsion of polyvalent metal salt, vinyl acrylate, urethane group compound having isocyanate group or silane coupling agent is used as a **cross-linking agent** or catalyst of adhesive. The mineral salt containing univalent metal (such as sodium and potassium) or hydroxide, sulfate or chloride of polyvalent metal (such as tin, magnesium and zinc), organic base of mono-di-tri-ethanolamine, morpholine, aqueous ammonia or mono-di-tri-isopropanolamine, is used as pH regulator. The emulsion or aqueous solution of alkyl ether type non-ionic surfactant, alkyl ether ester group nonionic surfactant, **polyacrylic acid**, **acrylic acid**, acrylate polymer or their neutralized salts, is used as viscosity regulator. Mono-di-tri-ethylene glycol, polyethylene glycol, urea or sorbitol, is used as workability improving agent. The aqueous processing pigment, reactive dye, direct color, disperse dye, acid dye, vat dye, cationic dye or ceramic ink, is used as color phase regulator. The flexible smoothing agent is chosen from (A) dispersion liquid emulsified by natural fats and oils, higher alcohol, polyalcohol, higher fatty acid, higher fatty acid ester, polyalkyl amide, paraffin wax, synthetic wax, straight chain mineral oil, simple substance of surfactant (such as polyalcohol group nonionic surfactant), ethylene oxide of higher alcohol, higher fatty acid, higher fatty acid ester, propylene oxide, addition product or sulfuric acid, ester salt, sulfonate or phosphate, polyamide organic acid salt, polyamide quaternary ammonium salt, amide **polyamine** quaternary ammonium salt or alkyl quaternary ammonium salt, betaine group amphoteric surfactant, amino acid group amphoteric surfactant, and (B) dispersion liquid of polyurethane resin, dimethyl polysiloxane, modified silicone acrylic resin, polyester resin, polyethylene resin, vinyl acetate group or polyvinyl alcohol group resin. Sodium hyposulfide, organic high molecular compound (anionic polymeric activator), nonionic surfactant, formamidine sulfonic acid or stannous chloride, is used as stripping agent. Sodium polyacrylate is used as coloring agent. Meta-nitrobenzene sulfonic acid salt is used as an oxidizing agent. The dispersion liquid of fluororesin, dimethyl polysiloxane, modified polysiloxane, polyethylene resin, polypropylene or acrylic resin, dispersion liquid of polyvalent metals (such as zirconium, titanium, zinc, calcium or magnesium), paraffin wax, synthetic macromolecular wax, or dispersion liquid of colloidal silica or modified colloidal silica, is used as water repellent. The metal or metal deposited substance is titanium oxide group white pigment, mica group pearl pigment or gold powder. The ceramics is yttrium oxide, stabilized zirconia, magnesium oxide, spinel, mullite, silicon carbide, tungsten carbide, tantalum carbide, titanium carbide, boron carbide, calcium carbonate, barium carbonate, magnesium carbonate, aluminum nitride, silicon nitride, zirconium nitride, tantalum nitride, titanium nitride, niobium nitride, boron nitride, zirconium boride or tungsten boride.

L27 ANSWER 7 OF 16 WPIDS (C) 2002 THOMSON DERWENT
 AN 2001-079586 [09] WPIDS
 CR 1999-370732 [31]; 2000-679227 [58]; 2001-307745 [31]; 2002-303048 [18]
 DNN N2001-060549 DNC C2001-022795
 TI Multicomponent superabsorbent particle for use in, e.g. diapers and catamenial devices, comprises microdomains of acidic and basic water-absorbing resins.
 DC A14 A84 A96 A97 D15 D22 P73
 IN BEIHOFFER, T W; MITCHELL, M A

PA (AMCO-N) AMCOL INT CORP

CYC 1

PI US 6159591 A 20001212 (200109)* 30p

ADT US 6159591 A CIP of US 1997-974125 19971119, US 1998-115847 19980715

FDT US 6159591 A CIP of US 6072101

PRAI US 1998-115847 19980715; US 1997-974125 19971119

AB US 6159591 A UPAB: 20020621

NOVELTY - A multicomponent superabsorbent particle comprises microdomain(s) of basic water-absorbing resin(s) dispersed in a continuous phase of acidic water-absorbing resin(s).

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is also included for a method of absorbing an aqueous medium comprising contacting the medium with the particles of the invention.

USE - For use in articles, e.g. diapers and catamenial devices (claimed), designed to absorb large amounts of liquids, especially electrolyte-containing liquids.

ADVANTAGE - The superabsorbent (SAP) particles of the invention have a high absorption rate, good permeability, conductivity and gel strength. The SAP particles overcome salt poisoning effect and demonstrate an improved ability to absorb and retain electrolyte-containing liquids, e.g. saline, blood, urine. The particles have an absorption under 0.7 psi load of at least 10 grams of 0.9% saline per gram of particles after one hour and after three hours, and a saline flow conductivity value of at least 150 multiply 10⁻⁷ cm³sec/g. The particles have an initial performance under pressure capacity rate greater than 50 g/g/hr^{1/2} and a free swell rate greater than 0.35 g/g/sec.

Dwg. 0/11

TECH

UPTX: 20010213

TECHNOLOGY FOCUS - POLYMERS - Preferred Resin: The acidic and basic resins respectively contain 75-100% acidic and basic moieties in a free acid or base form. The resins are lightly **crosslinked**. At least 10% of the monomer units comprising the acidic resin are acidic monomer units. At least 6% of the monomer units comprising the basic resin are basic monomer units. The basic resin comprises a strong basic resin and the acidic resin comprises a strong acidic resin and/or a weak acidic resin. It may also comprise a weak basic resin. The weight ratio of acidic resin to basic resin is 90:10 to 10:90.

Preferred Polymers: The basic resin is poly(vinylamine), poly(dialkylaminoalkyl (meth)acrylamide), a polymer prepared from the ester analog of an N-(dialkylamino (meth)acrylamide), polyethyleneimine, poly(vinylguanidine), poly(allylguanidine), poly(allylamine), poly(dimethylaldialkylammonium hydroxide), guanidine-modified polystyrene, quaternized polystyrene, quaternized poly(meth)acrylamide or its ester analog, and/or poly(vinyl alcohol-co-vinylamine). The acidic resin is **polyacrylic acid**, hydrolyzed starch-acrylonitrile graft copolymer, starch-acrylic acid graft copolymer, saponified vinyl acetate-acrylic ester copolymer, hydrolyzed acrylonitrile polymer, hydrolyzed acrylamide copolymer, ethylene-maleic anhydride copolymer, isobutylene-maleic anhydride copolymer, poly(vinylphosphonic acid), poly(vinylsulfonic acid), poly(vinylphosphoric acid), poly(vinyl-sulfuric acid), sulfonated polystyrene, poly(aspartic acid), and/or poly(lactic acid). The basic resin preferably comprises poly(vinylamine), poly(dialkylaminoalkyl (meth)acrylamide), poly(vinylguanidine), and/or polyethyleneimine and the acidic resin is a **poly(acrylic acid)** (poly(AA)) resin. The poly(dialkylaminoalkyl (meth)acrylamide) comprises poly(dimethylaminoethyl acrylamide) (poly(DAEA)), and/or poly(dimethylaminopropyl methacrylamide). Preferred Particle: The particle contains 50-100 wt.% basic and acidic resin. It may also comprise

- (1) microdomain(s) of acidic water-absorbing resin(s) dispersed in a continuous phase of basic water-absorbing resin(s); or
- (2) microdomain(s) of the basic resin(s) and of the acidic resin(s) dispersed in a continuous phase of a matrix resin.

The particle is 10-10,000 microns in diameter and is in the form of a bead, granule, flake, an interpenetrating polymer network, a fiber, an agglomerated particle, a laminate, a powder, foam, or a sheet. Preferred Method: The particle is annealed at 65-150degreesC for 20 minutes to 16 hours. The basic resin is surface **crosslinked** with up to 1 wt.% of the particle with a surface **crosslinking** agent.

TECHNOLOGY FOCUS - ORGANIC CHEMISTRY - Preferred Agent: The surface crosslinking agent is a dihalide or a disulfonate ester of formula Y-(CH₂)_p-Y; a multifunctional aziridine; a multifunctional aldehyde or its acetal or bisulfite; a halohydrin; a multifunctional epoxy compound; a multifunctional 2-12C **carboxylic** acid or its methyl or ethyl ester, acid chloride, or anhydride; an organic titanate; a melamine resin; a hydroxymethyl urea; and/or a multifunctional isocyanate.

p = 2-12; and

Y = halo, tosylate, mesylate, alkyl sulfonate ester, or aryl sulfonate ester.

The surface crosslinking agent is preferably a polyhydroxy compound, a metal salt, a quaternary ammonium compound, a multifunctional epoxy compound, an alkylene carbonate, a polyaziridine, a haloepoxy, a **polyamine**, and/or a polyisocyanate.

L27 ANSWER 8 OF 16 WPIDS (C) 2002 THOMSON DERWENT

AN 2001-015769 [02] WPIDS

DNC C2001-004212

TI Polymer hydrogel mixture, useful for the production of absorption materials, comprises a hydrogel forming polymer having acidic groups and a hydrogel forming polymer having amine and/or imine groups..

DC A14 A26 A96 D22 F07

IN DYLLICK-BREZNINGER, R; HAHNLE, H; HERFERT, N; RIEGEL, U; SCHROEDER, U; HAEHNLE, H

PA (BADI) BASF AG

CYC 25

PI WO 2000063295 A1 20001026 (200102)* DE 68p

RW: AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE

W: BR CA JP MX PL US

DE 19931720 A1 20010111 (200104)

DE 19917919 A1 20010201 (200108)

EP 1175460 A1 20020130 (200216) DE

R: AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE

BR 2000009873 A 20020423 (200235)

ADT WO 2000063295 A1 WO 2000-EP3220 20000411; DE 19931720 A1 DE 1999-19931720 19990708; DE 19917919 A1 DE 1999-19917919 19990420; EP 1175460 A1 EP 2000-925196 20000411, WO 2000-EP3220 20000411; BR 2000009873 A BR 2000-9873 20000411, WO 2000-EP3220 20000411

FDT EP 1175460 A1 Based on WO 200063295; BR 2000009873 A Based on WO 200063295

PRAI DE 1999-19931720 19990708; DE 1999-19917919 19990420

AB WO 200063295 A UPAB: 20010110

NOVELTY - A hydrogel forming polymer mixture (I) contains:

(A) a hydrogel forming polymer having acidic groups; and

(B) a hydrogel forming polymer having amine and /or imine groups such that the ratio of acid groups in (A) to the sum of amine and/or imine groups in (B) is 1:9-9:1.

USE - The hydrogel forming polymer mixture (I) is useful as an absorption material for water and aqueous fluids in hygiene articles and for the absorption of bodily fluids (claimed).

ADVANTAGE - The polymer mixture (I) has good absorption properties and a high mechanical stability.

Dwg.0/0

TECH UPTX: 20010110

TECHNOLOGY FOCUS - POLYMERS - Preferred Composition: (A) is **cross-linked polyacrylic acid** having 0-50 % of the **carboxylic acid** groups in the form of alkali- and/or

ammonium salts. (B) is **cross-linked** and is a polyethylene imine, an ethylene imine grafted polyamidoamine and/or ethyleneimine grafted **polyamine**. (B) is a **cross-linked** polyvinylamine, having a degree of hydrolysis of 70-100 and is thermally post-**crosslinked**. (B) is a copolymer of vinylformamide and mono-ethylenically unsaturated mono- and/or polycarboxylic acids, that is hydrolysed, desalted and thermally **crosslinked** and is further **cross-linked** with a cationic polymer or copolymer based on polyvinylamine or polyethyleneimine and/or at least a bifunctional **crosslinking** agent. (B) is a **polyamine**, that is modified by reaction with an alpha,beta-unsaturated **carboxylic** acid, corresponding esters or by a Strecker reaction, followed by thermally **cross-linking**. The polymer mixture (I) has an SFC index at least 10,000, a PAI index (NaCl) at least 100 or a PAI index (Jays) at least 150 after a swelling time of 16 h, a diffusing absorbency under pressure at least 30 g/g, a wicking distance at least 5, a wicking capacity of at least 5 g, an Acquisition time 3 of at most 25 s, a Rewet 3 of no greater than 9 g in an Acquisition time/Rewet-Test under pressure, an RAC factor of at least 80 and a DATGLAP of at least 50 g/g. (I) is prepared by mixing polymer gel (A) and polymer powder (B) or polymer powder (A) and polymer gel (B) or by addition of (A) or (B) as a powder to the reaction mixture of the other component. (I) is prepared by self-**crosslinking** of a polyvinylamine having a degree of hydrolysis of 70-100 by drying a mixture of (A) and (B) at 80-200 degrees C.

L27 ANSWER 9 OF 16 WPIDS (C) 2002 THOMSON DERWENT
 AN 2000-679227 [66] WPIDS
 CR 1999-370732 [31]; 2001-079586 [06]; 2001-307745 [31]; 2002-303048 [18]
 DNN N2000-502879 DNC C2000-206426
 TI Multicomponent superabsorbent fiber useful for making articles for absorbing e.g. bodily fluids comprises core of basic water-absorbing resin sheathed in acidic water-absorbing resin.
 DC A96 D22 F01 F07 P34
 IN EVANS, S J; HENDERSON, J A; MITCHELL, M A; TOMLIN, A S
 PA (AMCO-N) AMCOL INT CORP; (BADI) BASF AG
 CYC 92
 PI WO 2000056959 A1 20000928 (200066)* EN 125p
 RW: AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW NL
 OA PT SD SE SL SZ TZ UG ZW
 W: AE AG AL AM AT AU AZ BA BB BG BR BY CA CH CN CR CU CZ DE DK DZ EE
 ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR
 LS LT LU LV MA MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK
 SL TJ TM TR TT TZ UA UG UZ VN YU ZA ZW
 AU 2000041738 A 20001009 (200103)
 EP 1169502 A1 20020109 (200205) EN
 R: AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT
 RO SE SI
 BR 2000009188 A 20011226 (200206)
 US 6342298 B1 20020129 (200210)
 US 2002015846 A1 20020207 (200213)
 US 6376072 B2 20020423 (200232)
 ADT WO 2000056959 A1 WO 2000-US7408 20000321; AU 2000041738 A AU 2000-41738
 20000321; EP 1169502 A1 EP 2000-921414 20000321, WO 2000-US7408 20000321;
 BR 2000009188 A BR 2000-9188 20000321, WO 2000-US7408 20000321; US 6342298
 B1 CIP of US 1997-974125 19971119, CIP of US 1998-120674 19980722, CIP of
 US 1998-179553 19981028, US 1999-273878 19990322; US 2002015846 A1 CIP of
 US 1997-974125 19971119, CIP of US 1998-120674 19980722, CIP of US
 1998-179553 19981028, Div ex US 1999-273878 19990322, US 2001-860095
 20010517; US 6376072 B2 CIP of US 1997-974125 19971119, CIP of US
 1998-120674 19980722, CIP of US 1998-179553 19981028, Div ex US
 1999-273878 19990322, US 2001-860095 20010517
 FDT AU 2000041738 A Based on WO 2000056959; EP 1169502 A1 Based on WO

200056959; BR 2000009188 A Based on WO 200056959; US 6342298 B1 CIP of US 6072101, CIP of US 6222091, CIP of US 6235965; US 2002015846 A1 CIP of US 6072101, CIP of US 6222091, CIP of US 6235965; US 6376072 B2 CIP of US 6072101, CIP of US 6222091, CIP of US 6235965, Div ex US 6342298

PRAI US 1999-273878 19990322; US 1997-974125 19971119; US 1998-120674 19980722; US 1998-179553 19981028; US 2001-860095 20010517

AB WO 200056959 A UPAB: 20020621

NOVELTY - A multicomponent superabsorbent fiber comprise (a) a core comprising at least one basic water-absorbing resin and (b) a sheath comprising at least one acidic water-absorbing resin, which forms a layer surrounding and in contact with the core.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for (1) an article comprising a core containing a superabsorbent polymer, in which the core comprises 1-100 wt.% of the above fibers or braided fibers as (3) below; (2) a superabsorbent material comprising (i) fibers as above or fibers with an acid resin core and a basic resin sheath, and (ii) particles of a second water-absorbing resin comprising an acidic resin and/or a basic resin; (3) a multicomponent superabsorbent fiber comprising (a) one or more first fibers of an acid resin and (b) one or more second fibers of a basic resin such that the 2 types of fiber are either twisted together to form a braid or admixed then formed into the shape of a mat; (4) a method of manufacturing multicomponent superabsorbent fibers having a core of poly(vinylamine) and a sheath of **poly(acrylic acid)** comprising: (A) heating an aqueous solution of an uncrosslinked poly(vinylamine) containing 0.001-0.1 mol% of a **crosslinking** agent to lightly **crosslink** the polymer and form a spinning dope; (B) feeding the spinning dope to a coagulation bath containing 0.1-2 wt.% of a **crosslinking** agent dissolved in a non-solvent for poly(vinylamine) to form a filament of **crosslinked** poly(vinylamine); (C) passing the filament through a bath comprising **poly(acrylic acid)**, 0.5-5 wt.% of a **crosslinking** agent and a solvent to form a sheath of **poly(acrylic acid)** on the filament; (D) passing the filament through a doping bath containing a curing catalyst; and (E) curing the filament; and (5) a method of manufacturing a multicomponent superabsorbent comprising a mixed bed of fibers of acidic and basic resins comprising forming a mixture of the fibers into a mixed bed of predetermined shape and thickness, and annealing the bed at 65-150 deg. C for 20 minutes to 16 hours.

USE - For absorbing aqueous media, preferably those containing electrolytes, e.g. urine, saline, menses and blood, and for forming a diaper core (all claimed), or in adult incontinence garments and catamenial devices.

ADVANTAGE - The fibers and a mat of the fibers retain their structural integrity after hydration with a liquid medium (claimed). The fibers have a high absorption rate, good permeability and gel strength, they overcome the salt poisoning effect and show an improved ability to absorb and retain electrolyte-containing liquids. The fibers resist coalescence during hydration and remain fluid permeable and they have improved absorption and retention properties relative to sodium polyacrylate fibers. Surface-treatment or annealing further improves water absorption and retention properties, especially under a load.

DESCRIPTION OF DRAWING(S) - 3A is a cross-sectional view of a water-absorbing fiber having a core microdomain of a first resin surrounded by a sheath microdomain of a second resin.

idealized multicomponent fiber 30

core 32

sheath 34

Dwg.3A/12

TECH

UPTX: 20001219

TECHNOLOGY FOCUS - POLYMERS - Preferred Components: The basis resin comprises a strong basic resin and/or a weak basic resin and the acidic resin comprises a strong acidic resin and/or a weak acidic resin. The

weight ratio of acidic to basic resin is 95:5 to 5:95. The basic resin has 75-100% of the basic groups in the free base form and it is lightly **crosslinked**. The basic resin may be a poly(vinylamine), a poly(dialkylaminoalkyl (meth)acrylamide) (preferably poly(dimethylaminoethyl acrylamide and/or poly(dimethylaminopropyl methacrylamide)), a poly(vinylguanidine), a poly(ethyleneimine) (all 4 and mixtures preferred), 9 specified other polymer types or a mixture. The acid resin contains **carboxylic acid**, sulfonic acid, sulfuric acid, phosphonic acid or phosphoric acid groups or a mixture, and 75-100% of the acid groups are in the free acid form. The acid resin is lightly **crosslinked** and it may be **poly(acrylic acid)** (preferred and preferably containing strong acid groups), a hydrolyzed starch-acrylonitrile graft copolymer, a starch-acrylic acid graft copolymer, a saponified vinyl acetate-acrylic ester copolymer, a hydrolyzed acrylonitrile polymer, a hydrolyzed acrylamide copolymer, an ethylene-maleic anhydride copolymer, a poly(vinylphosphonic acid), a poly(vinylsulfonic acid), a poly(vinylphosphoric acid), a poly(vinylsulfuric acid), a sulfonated polystyrene, a poly(aspartic acid) a poly(lactic acid) or a mixture.

Preferred Fiber: The fiber is elongated and acicular. It may have the shape of a cylinder of diameter 10 μm to 1 mm and a length of 1-100 mm or it may be a filament of length to diameter ratio 500-10,000:1. The fiber is annealed at 65-150°C for 20 minutes to 16 hours and it is surface **crosslinked** with up to 10,000 ppm of a surface **crosslinking agent**, preferably a polyhydroxy compound, a metal salt, a quaternary ammonium compound, a multifunctional epoxy compound, an alkylene carbonate, a polyaziridine, a halo-epoxy compound, a **polyamine**, a polyisocyanate or a mixture. The core may contain microdomains of at least one acidic resin and the sheath may contain microdomains of at least one basic resin. The core of the fiber may have voids.

Preferred Embodiment: The fiber has an acidic resin core and a basic resin sheath. It is surface **crosslinked** with (a) a dihalide or disulfonate ester $\text{Y}-(\text{CH}_2)_p-\text{Y}$

p = an integer, 2-12; and

Y = halo, tosylate, mesylate, or an alkyl or aryl sulfonate ester; (b) a multifunctional aziridine; (c) a multifunctional aldehyde or its acetal or bisulfite; (d) a halohydrin; (e) a multifunctional epoxy compound; (f) a 2-12C multifunctional **carboxylic acid** or its methyl or ethyl ester, acid chloride or anhydride; (g) an organic titanate; (h) a melamine resin; (i) a hydroxymethyl urea; (j) a multifunctional isocyanate; or (k) a mixture. The core may contain microdomains of at least one basic resin and the sheath may contain microdomains of at least one acidic resin.

Preferred Superabsorbent Material: The material contains 10-90 wt.% of the superabsorbent fibers, which are 0-25% neutralized. The second water-absorbing resin is 0-100% neutralized and preferably comprises an acidic water-absorbing resin.

Preferred Braided Fiber: The first fiber contains microdomains of at least one basic resin and the second fiber contains microdomains of at least one acidic resin. **Preferred Method:** The filament is dried between steps (B) and (C) and again before step (D). The **crosslinking agent** is ethylene glycol diglycidyl ether and the curing catalyst is triethylamine. The filament is cured at 60-150°C for 10-60 minutes.

L27 ANSWER 10 OF 16 WPIDS (C) 2002 THOMSON DERWENT

AN 2000-526013 [48] WPIDS

DNC C2000-156372

TI Cosmetic detergent product especially useful as shampoo and conditioner for the hair, contains a cationic polymer and a water soluble anionic polycondensate with at least one polyurethane and/or polyurea sequence.

DC A14 A25 A26 A96 D21

IN CAUWET-MARTIN, D; DUBIEF, C; RESTLE, S; CAUWET, M D

PA (OREA) L'OREAL SA

CYC 35

PI EP 1025833 A1 20000809 (200048)* FR 24p

R: AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT
RO SE SI

AU 2000013597 A 20000810 (200048)

CZ 2000000160 A3 20000816 (200048)

FR 2788972 A1 20000804 (200048)

CA 2297564 A1 20000803 (200052) FR

AU 725591 B 20001012 (200055)

JP 2000239130 A 20000905 (200057) 17p

ZA 2000000394 A 20001129 (200106) 63p

HU 2000000431 A2 20010228 (200121)

KR 2000057861 A 20000925 (200122)

CN 1281693 A 20010131 (200131)

BR 2000000614 A 20010814 (200154)

RU 2180831 C2 20020327 (200233)

ADT EP 1025833 A1 EP 2000-400053 20000111; AU 2000013597 A AU 2000-13597

20000127; CZ 2000000160 A3 CZ 2000-160 20000117; FR 2788972 A1 FR

1999-1238 19990203; CA 2297564 A1 CA 2000-2297564 20000202; AU 725591 B AU

2000-13597 20000127; JP 2000239130 A JP 2000-26868 20000203; ZA 2000000394

A ZA 2000-394 20000128; HU 2000000431 A2 HU 2000-431 20000202; KR

2000057861 A KR 2000-4886 20000201; CN 1281693 A CN 2000-117851 20000202;

BR 2000000614 A BR 2000-614 20000202; RU 2180831 C2 RU 2000-102678

20000202

FDT AU 725591 B Previous Publ. AU 200013597

PRAI FR 1999-1238 19990203

AB EP 1025833 A UPAB: 20001001

NOVELTY - A detergent composition comprising, in a cosmetically acceptable medium, a washing base, at least one cationic polymer, and at least one water-soluble anionic polycondensate comprising at least one polyurethane and/or polyurea sequence.

USE - As shampoo/conditioners for cleansing and conditioning the hair.

ADVANTAGE - The presence of the polycondensate in the shampoo/conditioner formulation leaves the hair in a condition suitable for styling and setting so that it can be coiffured during drying.
Dwg.0/0

TECH UPTX: 20001001

TECHNOLOGY FOCUS - ORGANIC CHEMISTRY - Preferred Composition: The washing base comprises one or more detergent compositions selected from anionic, amphoteric, nonionic or zwitterionic surfactants or mixtures of these. The washing base preferably represents 4-50 (6-25) wt. % of the total composition. The composition preferably has a pH of 4-9.

TECHNOLOGY FOCUS - POLYMERS - Preferred Polycondensate Composition: The polycondensate is preferably comprised of blocks derived from (1) at least one compound which contains two or more active H atoms per molecule; (2) at least one diol or mixture of diols containing acid radicals or their salts; and (3) at least one di- or polyisocyanate. The compounds (1) are selected e.g. from diols, diamines, polyesterols, polyetherols or mixtures of these. (2) is preferably a 2,2-hydroxymethyl **carboxylic** acid.

20 preferred compounds (3) are claimed including hexamethylenediisocyanate, toluene diisocyanate, diphenylmethane-4,4'-diisocyanate, mixtures of 2,4- and 2,6-toluene diisocyanate, etc. The polycondensate may be made with an additional component (4) comprising of a silicone compound selected from polysiloxanes, polyalkylsiloxanes and polyarylsiloxanes, especially poly(m)ethylsiloxanes and polyphenylsiloxanes, optionally with hydrocarbon chains grafted to the Si atoms. The polyurethane and/or polyurea sequences in the polymer are preferably composed of repeating units of formula (I)

-X'-B-X'-CO-NH-R-NH-CO- (I)

X' = O and/or NH

B = optionally substituted hydrocarbon radical

R = divalent radical selected from optionally substituted alkylene type radicals selected from aromatic, 1-20 C aliphatic and 1-20 C cycloaliphatic radicals;

B is preferably a 1-30 C bivalent hydrocarbon radical; R is preferably hexamethylene, 4,4'-biphenylenemethane, 2,4- and/or 2,6-tolylene, 1,5-naphthalene, p-phenylene, methylene-4,4-bis-cyclohexyl or a divalent radical derived from isophorone. The polycondensate may also contain repeating units of formula (II)

$-X'-P-X'-CO-NH-R-NH-CO-$ (II)

P = polysiloxane segment;

X' = O and/or NH;

R = optionally substituted alkylene type radicals selected from aromatic, 1-20 C aliphatic and 1-20 C cycloaliphatic radicals.

Preferred Composition: The polycondensate is preferably used in an amount of 0.05-10 (0.1-5) wt. % on total weight of the composition.

Preferred Cationic Polymer: The cationic polymer is selected from (1) Homo- and copolymers derived from (meth)acrylic esters and amides and containing at least one of the units (A), (B), (C) or (D).

R3 (same or different) = H or CH3;

A (same or different) = 1-6C linear or branched alkyl or 1-4C hydroxyalkyl;

R4, R5 and R6 (same or different) = 1-18C alkyl or benzyl;

R1 and R2 (same or different) = H or 1-6C alkyl;

X = an anion of an (in)organic acid;

(2) Cellulose ether derivatives containing quaternary ammonium groups; (3) cationic cellulose derivatives or cellulose derivatives grafted with a water soluble quaternary ammonium monomer; (4) cationic **polysaccharides**; (5) polymers made up of piperazinyl units and divalent alkylene or hydroxyalkylene radicals with straight or branched chains which may be interrupted by O, S or N atoms or by aromatic or heterocyclic rings, as well as oxidation- and quaternization products of these polymers; (6) water soluble polyaminoamides obtained e.g. by polycondensation of an acid compound with a **polyamine**, and optionally **crosslinked** with 0.025-0.35 mole per amine group of the polyaminoamide of a **crosslinking** agent such as an epihalohydrin, diepoxide, dianhydride, etc; (7) polyaminoamide derivatives obtained by condensation of polyalkylenepolyamines with polycarboxylic acids followed by alkylation with bifunctional agents; (8) polymers obtained by reacting a polyalkylene **polyamine** with two primary amine groups and at least one secondary amine group with a dicarboxylic acid selected from diglycolic acid and 3-8C saturated aliphatic dicarboxylic acids; (9) copolymers of alkyl diallyl amines or dialkyl diallyl ammonium; (10) quaternary diammonium polymers containing repeating unit of formula (VII):

R13, R14, R15 and R16 (same or different) = 1-20C aliphatic, alicyclic or arylaliphatic radicals or lower hydroxyalkylaliphatic radicals, or R13, R14, R15 and R16 together or separately together with the N atoms to which they are attached may form a heterocycle which may contain an additional hetero atom, or R13, R14, R15 and R16 may = a 1-6C linear or branched alkyl substituted by nitrile, ester, acyl, amide, $-CO-O-R17-D$ or $-CO-NH-R17-D$ in which R17 = alkylene and D = a quaternary ammonium group.

A1 and B1 = 2-20C polymethylene group which may be linear or branched, saturated or unsaturated, and may contain, bound to or intercalated into the main chain, one or more aromatic rings, one or more O or S atoms or sulfoxide, sulfone, disulfide, amino, alkylamino, hydroxyl, quaternary ammonium, ureido, amide or ester groups;

X- = an anion of an (in)organic acid;

A1, R13 and R15 together with the N atom to which they are attached may = a piperazine ring;

if A1 = linear or branched, saturated or unsaturated alkylene or hydroxyalkylene radical then B1 may also = a group $(CH_2)_n-CO-D-OC-(CH_2)_n-$ in which D = (a) a residue of a glycol of formula $-O-Z-O-$ in which Z = linear or branched hydrocarbon group or a group $-(CH_2-CH_2-O)_x-CH_2-CH_2-$ or

-(CH₂-CH(CH₃)-O)_y-CH₂-CH(CH₃)- in which x and y = 1-4; (b) the residue of a bis-secondary diamine such as a piperazine derivative; (c) the residue of a bis-primary amine of formula -NH-Y-NH- where Y = a linear or branched hydrocarbon radical, or a bivalent radical of formula -CH₂-CH₂-S-S-CH₂-CH₂-; or (d) a ureylene group of formula -NH-CO-NH-

(11) Poly quaternary ammonium polymers having repeating units (VIII).

R₁₈, R₁₉, R₂₀ and R₂₁ (same or different) = H or methyl, ethyl, propyl, beta-hydroxyethyl, beta-hydroxypropyl or -CH₂CH₂(OCH₂CH₂)_pOH in which p = 0 or a whole number 1-6, with the proviso that R₁₈, R₁₉, R₂₀ and R₂₁ may not all = H simultaneously;

r and s (same or different) = whole numbers 1-6;

q = 0 or a whole number 1-34;

X = halogen atom;

A = a radical of a dihalide or, preferably, -CH₂-CH₂-O-CH₂-CH₂-;

(12) quaternary polymers of vinylpyrrolidone and vinylimidazole; (13) the polyamines known as POLYETHYLENEGLYCOL (15) TALLOW

POLYAMINE; (14) crosslinked polymers of

methacryloyloxyalkyl(1-4C)trialkyl(1-4C)ammonium salts; and (15)

polyalkyleneimines, especially polyethyleneimines, polymers containing

vinylpyridine or vinylpyridinium units, condensates of polyamines

and epichlorhydrin, quaternary polyureylenes and chitin derivatives.

Preferred cationic polymers are quaternary cellulose ether derivatives,

cationic polysaccharides, vinylpyrrolidone/methacrylamidopropyl

dimethylamine copolymers and mixtures of these. The cationic polymer is

preferably used in an amount of 0.01-10 (0.05-5) wt. % on total weight of the composition.

L27 ANSWER 11 OF 16 WPIDS (C) 2002 THOMSON DERWENT

AN 2000-442008 [38] WPIDS

DNC C2000-134244

TI Water borne polymeric complex, for coatings, comprises conjugated polymer, and polymer having balanced hydrophobic and hydrophilic regions.

DC A14 A17 A28 A82 G02 M11 M13 M14

IN BROWN, R; YANG, S C

PA (RHOD-N) RHODE ISLAND HIGHER EDUCATION

CYC 21

PI WO 2000032844 A1 20000608 (200038)* EN 37p

RW: AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE

W: JP US

EP 1144728 A1 20011017 (200169) EN

R: AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE

ADT WO 2000032844 A1 WO 1999-US28307 19991201; EP 1144728 A1 EP 1999-965066 19991201, WO 1999-US28307 19991201

FDT EP 1144728 A1 Based on WO 200032844

PRAI US 1998-110612P 19981202

AB WO 200032844 A UPAB: 20000811

NOVELTY - Water borne polymeric complex comprises:

(a) strands of a pi conjugated polymer with cationic charges; and

(b) a polymer having balanced hydrophobic and hydrophilic regions, and anionic charges.

Polymer (b) is noncovalently bonded to (a) to form a polymeric adduct.

DETAILED DESCRIPTION - A water borne polymeric complex comprises:

(a) strands of a pi conjugated polymer with cationic charges, especially polyaniline, polypyrrole, polythiophene, poly(phenylene sulfide), poly(p-phenylene), poly(phenylene vinylene), poly(furylene vinylene), poly(carbazole), poly(thienylene vinylene), polyacetylene or poly(isothianaphthene); and

(b) a polymer having balanced hydrophobic and hydrophilic regions, and anionic charges, especially poly(meth)acrylic acid, vinyl methyl ether, maleic acid copolymer, methyl or ethyl methacrylate, acrylic acid copolymer, or acrylamide acrylic acid copolymer.

The bonded strands are configured in a double stranded polymeric

complex. The hydrophobic and hydrophilic regions result in a latex like dispersion of the complex in water. The polymeric complex is water soluble before it is coated on a surface and water insoluble after it has been coated on the surface.

USE - Used in an anticorrosive composition, especially for water borne coating applications (claimed). The coating composition can be applied to a metal surface by painting, immersion or electrodeposition.

ADVANTAGE - The composition avoids dedoping. The coating formulation replaces the toxic chromates in the coating applications.
Dwg.0/2

TECH

UPTX: 20000811

TECHNOLOGY FOCUS - POLYMERS - Preferred Complex: Polymer (a) is polyaniline. Polymer (b) is methyl methacrylate, acrylic acid copolymer, **polyacrylic acid**, or vinyl methyl ether, acrylic acid copolymer. Polymer (b) has both anionic and cationic functional groups. The cationic groups are methacrylate segments and the anionic groups are acrylic acid segments. The polymeric adduct is folded with the hydrophobic regions folded inside and the hydrophilic strands interfacing with water. Preferred Coating Composition: The coating composition is a thermoset or a thermoplastic resin. The resin is an epoxy, acrylic, alkyd, vinyl, urethane or olefinic resin. The coating composition is preferably an epoxy resin and further comprises a curing agent, especially capped **polyamine**, polymercaptan, polyisocyanate, polycarboxylic acid, polyanhydride, polyphenol or **carboxy** functional polyester. The epoxy is a cationic epoxy resin and the polymeric complex is **crosslinked** to the resin. Preferred Preparation: The polymeric complex is dispersed in water and the cationic epoxy resin is bound to it. A metal preferably aluminum is electrophoretically coated with the resulting cathodically charged solution.

L27 ANSWER 12 OF 16 WPIDS (C) 2002 THOMSON DERWENT

AN 2000-036470 [03] WPIDS

DNC C2000-009093

TI Environmentally friendly crosslinking system for polyfunctional compounds containing carboxyl, amine or anhydride groups.

DC A18 A28 A60 E19

PA (ANON) ANONYMOUS

CYC 1

PI RD 426007 A 19991010 (200003)* 2p

ADT RD 426007 A RD 1999-426007 19990920

PRAI RD 1999-426007 19990920

AB RD 426007 A UPAB: 20000118

NOVELTY - Polymers containing at least 2 carboxyl, anhydride or amine groups may be crosslinked with a system comprising:

- (a) an alkanolamine or a polyol other than a **poly**(alkanol) **amine**, i.e. an alkanolamine having at least 2 hydroxyl groups, and
- (b) a phosphorus-free catalyst.

USE - As a replacement for crosslinking systems comprising formaldehyde-based crosslinking agents and/or polyols used with phosphorus-based catalysts.

ADVANTAGE - The system is free of formaldehyde and phosphorus, which are both environmentally undesirable.
Dwg.0/0

TECH

UPTX: 20000118

TECHNOLOGY FOCUS - POLYMERS - Preferred **Crosslinking** System:

Crosslinking is performed at greater than 100degreesC.

The equivalents ratio of polymer functional groups to **crosslinker** hydroxyl and amine groups is 1-100:1 (preferably 5:4 to 20:1).

Preferred Components: The polyfunctional molecule may be citric acid, 1,2,4-benzene tricarboxylic acid, 1,2,4,5-benzene tetracarboxylic acid, 1,2,3,4-butane tetracarboxylic acid, **polyacrylic acid**, a **carboxylic acid**-functionalized polyester or polyurethane,

polyethyleneimine, poly(vinyl amine-co-vinyl alcohol), polyvinyl amines, and copolymers of ethylene, vinyl acetate, (meth)acrylic acid, 1-8C esters of (methacrylic acid), maleic anhydride, maleic acid, itaconic acid, crotonic acid, beta-carboxy ethyl acrylate, butadiene and styrene, e.g. ethylene/vinyl acetate/acrylic acid; acrylic acid/maleic anhydride; ethylene/vinyl acetate/maleic anhydride; methyl methacrylate/butyl acrylate/itaconic acid; styrene/(meth)acrylic acid, styrene/(meth)acrylic acid/maleic anhydride and styrene/butadiene copolymers (22 given).

The alkanolamine **crosslinkers** comprise an amine-nitrogen and at least one hydroxyl group, and have at least 2 carbon atoms between the amine-nitrogen and each hydroxyl group.

The **crosslinker** is, e.g. diethanolamine, methyldiethanolamine, phenyldiethanolamine, di- or triisopropanolamine, aminoethanolamine, dibutylethanolamine, N-(2-hydroxypropyl)ethylenediamine, 2-amino-1-butanol, pentaerythritol, trimethylolpropane, sorbitol, sucrose, catechol, pyrogallol, starch, a beta-hydroxyalkylamide, polyvinyl alcohol, a polymer of partially hydrolyzed polyvinyl acetate, a polymer of polyvinyl acetate and N-vinylformamide or N-vinylacetamide, or a polymer of hydroxyethyl(meth)acrylate or hydroxypropyl(meth)acrylate (48 given). The catalyst is a Lewis acid and/or Lewis base of boiling point greater than 100degreesC, e.g. tin oxalate, dibutyltin dilaurate, the ammonium salt of lactic acid chelate of titanium, silica, tetrabutylammonium hydroxide, triisobutylamine, aluminum sulfate, sulfamic acid, 1,4,7,10-tetracyclododecane or clay (16 given).

L27 ANSWER 13 OF 16 WPIDS (C) 2002 THOMSON DERWENT
 AN 1999-370732 [31] WPIDS
 CR 1999-370749 [31]; 2000-679227 [58]; 2001-079586 [06]; 2001-307745 [31];
 2001-475247 [43]; 2002-303048 [18]
 DNN N1999-276443 DNC C1999-109377
 TI Multi-component superabsorbent gel particles.
 DC A18 A28 A35 A96 D22 E19 F07 P32 P34
 IN ANDERSON, M; BEIHOFFER, T W; MITCHELL, M A; TOMLIN, A S; BELHOFFER, T W
 PA (AMCO-N) AMCOL INT CORP; (BADI) BASF AG
 CYC 85
 PI WO 9925393 A2 19990527 (199931)* EN 148p
 RW: AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW NL
 OA PT SD SE SZ UG ZW
 W: AL AM AT AU AZ BA BB BG BR BY CA CH CN CU CZ DE DK EE ES FI GB GD
 GE GH GM HR HU ID IL IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MD
 MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT UA
 UG UZ VN YU ZW
 ZA 9810461 A 19990728 (199935) 151p
 AU 9915221 A 19990607 (199943)
 US 6072101 A 20000606 (200033)
 NO 2000002546 A 20000620 (200045)
 FI 2000001087 A 20000628 (200047)
 EP 1042013 A2 20001011 (200052) EN
 R: AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT
 RO SE SI
 SK 2000000737 A3 20001009 (200056)
 CZ 2000001786 A3 20001115 (200064)
 US 6222091 B1 20010424 (200125)
 US 6235965 B1 20010522 (200130)
 CN 1286635 A 20010307 (200140)
 HU 2001001141 A2 20010828 (200157)
 US 2001029358 A1 20011011 (200162)
 KR 2001032226 A 20010416 (200163)
 US 2001044612 A1 20011122 (200176)
 BR 9814686 A 20011120 (200202)
 JP 2001523733 W 20011127 (200204) 127p
 US 6392116 B1 20020521 (200239)

ADT WO 9925393 A2 WO 1998-US24006 19981111; ZA 9810461 A ZA 1998-10461 19981116; AU 9915221 A AU 1999-15221 19981111; US 6072101 A US 1997-974125 19971119; NO 2000002546 A WO 1998-US24006 19981111, NO 2000-2546 20000518; FI 2000001087 A WO 1998-US24006 19981111, FI 2000-1087 20000509; EP 1042013 A2 EP 1998-959417 19981111, WO 1998-US24006 19981111; SK 2000000737 A3 WO 1998-US24006 19981111, SK 2000-737 19981111; CZ 2000001786 A3 WO 1998-US24006 19981111, CZ 2000-1786 19981111; US 6222091 B1 CIP of US 1997-974125 19971119, CIP of US 1998-120674 19980722, US 1998-179553 19981028; US 6235965 B1 CIP of US 1997-974125 19971119, US 1998-120674 19980722; CN 1286635 A CN 1998-813186 19981111; HU 2001001141 A2 WO 1998-US24006 19981111, HU 2001-1141 19981111; US 2001029358 A1 CIP of US 1997-974125 19971119, Cont of US 1998-120674 19980722, US 2001-849845 20010504; KR 2001032226 A KR 2000-705427 20000518; US 2001044612 A1 Cont of US 1997-974125 19971119, Cont of US 2000-500205 20000208, US 2001-880497 20010613; BR 9814686 A BR 1998-14686 19981111, WO 1998-US24006 19981111; JP 2001523733 W WO 1998-US24006 19981111, JP 2000-520826 19981111; US 6392116 B1 CIP of US 1997-974125 19971119, CIP of US 1998-120674 19980722, Div ex US 1998-179553 19981028, US 2000-551963 20000419

FDT AU 9915221 A Based on WO 9925393; EP 1042013 A2 Based on WO 9925393; CZ 2000001786 A3 Based on WO 9925393; HU 2001001141 A2 Based on WO 9925393; US 2001029358 A1 CIP of US 6072101, Cont of US 6235965; US 2001044612 A1 Cont of US 6072101; BR 9814686 A Based on WO 9925393; JP 2001523733 W Based on WO 9925393; US 6392116 B1 CIP of US 6072101, Div ex US 6222091, CIP of US 6235965

PRAI US 1998-179553 19981028; US 1997-974125 19971119; US 1998-120674 19980722; US 2001-849845 20010504; US 2000-500205 20000208; US 2001-880497 20010613; US 2000-551963 20000419

AB WO 9925393 A UPAB: 20020621

NOVELTY - A multi-component superabsorbent particle.

DETAILED DESCRIPTION - A multi-component superabsorbent particle (I) comprises:

(A) At least one microdomain of at least one basic water-absorbing resin dispersed in

(B) a continuous phase of at least one acidic water absorbing resin or (A') at least one microdomain of at least one acidic water absorbing resin dispersed in (B') a continuous phase of at least one basic water absorbing resin.

INDEPENDENT CLAIMS are included for:

(i) a method of absorbing an aqueous medium by contact with several particles of (I).

(ii) a superabsorbent material (II) comprising multicomponent superabsorbent particles (IV) wherein each particle comprises at least one microdomain of a first water-absorbing resin in contact with or in close proximity to at least one microdomain of a second water-absorbing resin and particles of a second water-absorbing resin consisting of an acidic and/or a basic water absorbing resin.

(iii) an article comprising (II)

(iv) a nappy having a core comprising at least 15 wt.% particles (IV) and

(v) a method of increasing the acquisition rate and decreasing the acquisition time of a nappy core in an absorption of a liquid by substituting at least 15% of the nappy core with (IV).

USE - The multicomponent superabsorbent gel particles are useful for the production of sanitary goods, hygienic goods and disposable towels.

ADVANTAGE - The gel particles have improved absorption of electrolyte containing solutions such as blood, urine, saline and menses.

DESCRIPTION OF DRAWING(S) - The drawing is a schematic diagram of a water absorbing particle containing microdomains of a first resin dispersed in a continuous phase of a second resin.

particle 10

continuous phase 12

microdomain 14

Dwg.1/29

TECH

UPTX: 19990806

TECHNOLOGY FOCUS - POLYMERS - Preferred Composition: The weight ratio of acidic resin to basic resin is 90:10 - 10:90. The particle (I) contains 50-100 wt.% basic resin plus acidic resin. (I) is 10-10,000 microns in diameter. The basic resin is annealed at 65-150 degreesC for 20 minutes to 16 hours. The basic resin is surface **cross-linked** with up to 1 wt.% of a surface **crosslinking** agent, preferably a dihalide or a disulfonate ester of formula (1), a dihalide or a disulfonate ester of formula (3), a multifunctional aziridine; a multifunctional aldehyde, or acetal or bisulfite, a halohydrin, a multifunctional epoxy compound; a multifunctional 2-12C **carboxylic** acid, methyl or ethyl ester, acid chloride, or anhydride derived therefrom; an organic titanate; a melamine resin; a hydroxymethyl urea; or a multifunctional isocyanate. The surface **cross-linking** agent is polyhydroxy compound, a metal salt, a quaternary ammonium compound, a multifunctional epoxy compound, an alkylene carbonate a polyaziridine, a haloepoxy or a **polyamine** or a polyisocyanate. The basic resin has 75-100 % basic moieties present in free basic form and is lightly **cross-linked**. At least 6% of the monomer units comprising the basic resin are basic monomer units. The basic resin is poly(vinylamine), a poly(dialkylaminoalkyl (meth)-acrylamide), a polymer prepared from the ester analog of a N-(dialkylamino(meth)acrylamide), a polyethylenimine, a poly(vinylguanidine), a poly(allyl-guanidine), a poly(allylamine), a poly(dimethyldialkylammonium hydroxide), a guanidine-modified polystyrene, a quaternized polystyrene, a quaternized poly(meth)acrylamide or ester analog thereof and/or poly(vinyl alcohol-co-vinylamine). The acidic resin contains a plurality of **carboxylic** acid, sulfonic acid, sulfuric acid, phosphonic acid and/or phosphoric acid groups. The acidic resin has 75-100 % acid moieties present in the free acid form and is lightly **crosslinked**. At least 10% of the monomer units comprising the acidic resin are acidic monomer units. The acidic resin is **polyacrylic acid**, a hydrolyzed starch-acrylo-nitrile graft copolymer, a starch-acrylic acid graft copolymer, a saponified vinyl acetate-acrylic ester copolymer, a hydrolyzed acrylonitrile polymer, a hydrolyzed acrylamide copolymer, an ethylene-maleic anhydride copolymer, an isobutylene-maleic anhydride copolymer, a poly(vinylphosphonic acid), a poly(vinylsulfonic acid), a poly(vinylphosphoric acid), a poly(vinyl-sulfuric acid), a sulfonated polystyrene, a poly(aspartic acid) and/or a poly(lactic acid). The basic resin comprises a poly(vinylamine), a poly(dialkylaminoalkyl(meth)acrylamide), a poly(vinylguanidine), and/or a polyethylenimine and the acidic resin comprises **polyacrylic acid**, preferably containing strong acid moieties. The poly(dialkylaminoalkyl(meth)acrylamide) comprises poly(dimethylaminoethyl acrylamide) and/or poly(dimethylaminopropyl methacrylamide). The aqueous medium to be absorbed contains electrolyte and is preferably urine, saline, menses or blood. The particle (I) contains 25-50 wt.% of a matrix resin, preferably a hydrophilic resin. (I) is in the form of a bead, a granule, a flake, an interpenetrating polymer network, a fiber, an agglomerated particle, a laminate, a powder, a foam or a sheet. (I) has an absorption under load at 0.7 psi of at least 10 g of 0.9% saline per gram of (I), after one hour and after 3 hours. (I) has a saline flow conductivity value of at least 150×10^{-7} cm³sec/g, an initial performance under pressure capacity rate of greater than 50 g/g/sec. The superabsorbent material (II) contains 10-90 wt.% particles (IV) having 0-25% of the multicomponent particles neutralised and 0-100% of the water absorbing resin neutralised. The second water absorbing resin has a degree of neutralisation of 0-70 and is an acidic water absorbing resin. The basic water absorbing resin in (II) is poly(vinylamine), a poly(dialkylaminoalkyl(meth)acrylamide), a polymer prepared from the ester analog of an N-(dialkylamino(meth)acrylamide), a polyethylenimine, a poly(vinylguanidine), a poly(allylguanidine), a poly(allylamine), a

poly(dimethyldialkyl-ammonium hydroxide), a guanidine-modified polystyrene, a quaternized polystyrene, a quaternized poly(meth)acrylamide or ester analog thereof and/or poly(vinyl-alcohol-co-vinylamine). (II) has an absorption under load at 0.7 psi of at least 20 g of 0.9% saline per g of (II) after one hour and at least 30 g after 3 hours, a saline flow conductivity of greater than 15×10^{-7} cm³/sec/g, an initial performance under pressure capacity rate of greater than 40 g/g/hr^{1/2} and a free swell rate of greater than 0.30 g/g/sec. The nappy core has an acquisition rate for 100 ml of 0.9% saline under a load of 0.7 psi greater than 2 ml/s and an acquisition rate for a subsequent two aliquots of 50 ml of greater than 2 ml/s. The core comprises at least 50, preferably 100 wt.% (IV). The nappy comprises a topsheet and a backsheet in contact with the core optionally with an acquisition layer disposed between the topsheet and the core.

Y - (CH₂)_p - Y (1)

p = 2-12;

Y = halo, tosylate, mesylate, an alkyl sulfonate ester or an aryl sulfonate ester

L27 ANSWER 14 OF 16 WPIDS (C) 2002 THOMSON DERWENT
 AN 1993-175439 [21] WPIDS
 CR 1994-191520 [23]
 DNN N1993-134500 DNC C1993-078375
 TI Recording sheet used as transparency materials - comprises substrate coated with coating comprising crosslinker and polymeric material and coating comprising binder and further material.
 DC A82 A89 E19 G05 G08 P73 P75 P84 S06 T04
 IN BRYANT, B S; JONES, A Y; MALHOTRA, S L; TURNER, J P
 PA (XERO) XEROX CORP
 CYC 5
 PI US 5212008 A 19930518 (199321)* 12p
 EP 566270 A1 19931020 (199342) EN 15p
 R: DE FR GB
 JP 06040146 A 19940215 (199411) 13p
 EP 566270 B1 19960925 (199643) EN 16p
 R: DE FR GB
 DE 69304973 E 19961031 (199649)
 JP 3230620 B2 20011119 (200176) 13p
 ADT US 5212008 A US 1992-861668 19920401; EP 566270 A1 EP 1993-302406 19930326; JP 06040146 A JP 1993-66611 19930325; EP 566270 B1 EP 1993-302406 19930326; DE 69304973 E DE 1993-604973 19930326, EP 1993-302406 19930326; JP 3230620 B2 JP 1993-66611 19930325
 FDT DE 69304973 E Based on EP 566270; JP 3230620 B2 Previous Publ. JP 06040146
 PRAI US 1992-861668 19920401
 AB US 5212008 A UPAB: 20011227
 Recording sheet comprises substrate and first coating contacting the substrate which comprises a crosslinking agent and a polymeric material capable of being crosslinked by the crosslinking agent, and a second coating contacting the first coating which comprises a binder and a further material (I).

Crosslinking agent is hexamethoxymethyl melamine, methylated melamine-formaldehyde, methylated urea-formaldehyde, cationic urea-formaldehyde, cationic **polyamine**-epichlorohydrin, glyoxal-urea resin, poly(aziridine), poly(acrylamide), poly(N,N-dimethyl acrylamide), acrylamide-acrylic acid copolymer, poly(2-acrylamido-2-methyl propane sulphonic acid, poly(N,N-dimethyl-3,5-dimethylenepiperidinium chloride), poly(methyleneguanidine) hydrochloride, poly(ethylene imine), poly(ethylene imine) epichlorohydrin, poly(ethylene imine) ethoxylated, glutaraldehyde and mixts. of these. Polymeric material is **polysaccharides** having at least one hydroxy gp. **polysaccharides** having at least one **carboxy** gp. **polysaccharides** having at least one sulphate gp. **polysaccharides** having at least one amine or amino gp.

polysaccharide gums, vinyl polymers, poly(alkylene oxides) and mixts. of these. Material (I) is fatty imidazoines, ethosulphate quat. cpds. dialkyl dimethyl methosulphate quat. cpds., alkoxylated di-fatty quat. cpds. amine oxides, amine ethoxylates, imidazoline quat. cpds. alkyl benzyl dimethyl quat. cpds., poly (epiamines), and mixts. of these.

First and second coatings both have a thickness of 1-25 microns. Crosslinking agent is pref. present in the first coating in an amt. of 0.1-10 wt. %. Polymeric material of being crosslinked is e.g, hydroxyethyl starch, methyl cellulose or Na cellulose sulphate (40 cpds. listed). and it is present in an amt. of 5-80 wt. %.

USE/ADVANTAGE - Used as transparency materials, filled plastics etc. Also used in copying and printing applications, partic. used in ink jet and electrophotographic imaging processes. Images are formed have high optical density, and high quality colour image obtd. with min. intercolour bleed. Sheets have good heat and/or humidity resistance, they show min. blocking at high relative humidities and high temps. Sheets can be stored in folders or plastic sleeves with the min. of intercolour ble

Dwg.0/0

Dwg.0/0

L27 ANSWER 15 OF 16 WPIDS (C) 2002 THOMSON DERWENT
 AN 1992-150570 [18] WPIDS
 CR 1995-263718 [34]
 DNC C1992-069666
 TI Compsn. used as bio-reactor for antibody - comprises biological material encapsulated in microcapsule including ionically crosslinked polymer gel.
 DC A96 B07 D16
 IN ALLCOCK, H R; BANO, C; CHOW, M B; COHEN, S; LANGER, R S; VISSCHER, K B; CHOW, M
 PA (MASI) MASSACHUSETTS INST TECHNOLOGY; (PENN-N) PENN STATE RES FOUND; (PENN-N) PENNSYLVANIA RES CORP; (ALLC-I) ALLCOCK H R; (BANO-I) BANO C; (CHOW-I) CHOW M B; (COHE-I) COHEN S; (LANG-I) LANGER R S; (VISS-I) VISSCHER K B
 CYC 17
 PI WO 9205778 A 19920416 (199218)* EN 45p
 RW: AT BE CH DE DK ES FR GB GR IT LU NL SE
 W: CA JP
 US 5149543 A 19920922 (199241) 14p
 EP 551411 A1 19930721 (199329) EN 45p
 R: AT BE CH DE DK ES FR GB GR IT LI LU NL SE
 US 5308701 A 19940503 (199417) 14p
 JP 06505961 W 19940707 (199431) 18p
 US 5494682 A 19960227 (199614) 14p
 EP 551411 B1 19970108 (199707) EN 24p
 R: AT BE CH DE DK ES FR GB GR IT LI LU NL SE
 DE 69124101 E 19970220 (199713)
 ES 2099172 T3 19970516 (199727)
 ADT WO 9205778 A WO 1991-US7297 19911004; US 5149543 A US 1990-593684 19901005; EP 551411 A1 EP 1991-919057 19911004, WO 1991-US7297 19911004; US 5308701 A Div ex US 1990-593684 19901005, US 1992-880248 19920508; JP 06505961 W JP 1991-517304 19911004, WO 1991-US7297 19911004; US 5494682 A Div ex US 1990-593684 19901005, Cont of US 1992-880248 19920508, US 1994-210018 19940318; EP 551411 B1 EP 1991-919057 19911004, WO 1991-US7297 19911004; DE 69124101 E DE 1991-624101 19911004, EP 1991-919057 19911004, WO 1991-US7297 19911004; ES 2099172 T3 EP 1991-919057 19911004
 FDT EP 551411 A1 Based on WO 9205778; US 5308701 A Div ex US 5149543; JP 06505961 W Based on WO 9205778; US 5494682 A Div ex US 5149543, Cont of US 5308701; EP 551411 B1 Based on WO 9205778; DE 69124101 E Based on EP 551411, Based on WO 9205778; ES 2099172 T3 Based on EP 551411
 PRAI US 1990-593684 19901005; US 1992-880248 19920508; US 1994-210018 19940318
 AB WO 9205778 A UPAB: 19960322
 Compsn. comprises a biological material (I) encapsulated in a microcapsule

including (1) a gel (A) prepd. from an ionically crosslinkable synthetic polymer (II) soluble in aq. soln. before crosslinking and having charged side gps. crosslinked by reaction with multivalent ions (MVI) of opposite charge, (A) being insol. after crosslinking; and (2) an outer membrane made by crosslinking the gel was polyvalent ion as same charge as MVI.

(I) is a liposome, virus or procaryotic or eucaryotic cell. The side gps. are acidic (basic) and the ions cations (anions). Anionic (II), which is soluble in water, aq. alcohol or aq. buffer salt soln., are polyphosphazenes; poly(meth)acrylic acids (or copolymers); polyvinyl ether; polyvinyl acetate or sulphonated polystyrene. MVI are Ca, Cu, Al, Mg, Sr, Ba, Sn or organic cations.

USE/ADVANTAGE - (I) can now be microencapsulated, reproducibly and in only a few steps, without use of high temp. or organic solvent, and microcapsule permeability can be controlled. In partic. the compsns. are used (1) as bioreactors for prodn. of antibodies (where (I) is a hybridoma) or recombinant proteins; (2) as drug delivery systems and (3) for tissue reinforcement. (II) are biocompatible and their rates of hydrolysis can be adjusted as required

0/0

Dwg. 0/0

L27 ANSWER 16 OF 16 WPIDS (C) 2002 THOMSON DERWENT

AN 1990-026264 [04] WPIDS

DNC C1990-011390

TI Water absorbing resin with reduced expansion for wall material - comprises freeze vacuum dried liq. absorbed water absorbing resin e.g. crosslinked polyethylene oxide.

DC A18

PA (MITP) MITSUBISHI PETROCHEMICAL CO LTD

CYC 1

PI JP 01304127 A 19891207 (199004)* 6p

JP 2548302 B2 19961030 (199648) 5p

ADT JP 01304127 A JP 1988-133761 19880531; JP 2548302 B2 JP 1988-133761 19880531

FDT JP 2548302 B2 Previous Publ. JP 01304127

PRAI JP 1988-133761 19880531

AB JP 01304127 A UPAB: 19930928

Resin comprises freeze-vacuum-dried liq. absorbed water absorbing resin, which has absorbed more than 80 wt.% liq. to a specific wt.

The raw material of the water absorbing resin is pref.

crosslinked (meth)acrylate polymer, saponified **crosslinked**

(meth)acrylate-vinyl acetate copolymer, **crosslinked**

starch-acrylate graft copolymer, saponified **crosslinked**

starch-methyl methacrylate graft copolymer, saponified **crosslinked**

starch-acrylonitrile graft copolymer, saponified **crosslinked**

starch-acrylonitrile-vinyl sulphonic acid graft copolymer, **cross**

-linked maleic anhydride drafted PVA., **crosslinked**

polyethylene oxide or **crosslinked Na carboxy**

methyl cellulose. **Crosslinking** is carried out

by entangling a highly polymerised molecule, self-**crosslinking**

by pseudo **cross-linking**, **crosslinking** with a

copolymerisable divinyl cpd., e.g. N,N-methylene bis (meth)acrylamide,

(poly)ethyleneglycol (meth)acrylate, etc. or reaction of a functional gp.,

e.g. carboxylate gp. with polyfunctional cpd., e.g. (poly)glycidyl ethers,

haloepoxy cpds, polyaldehydes, polyols, **polyamines**, etc. The

carboxylate is alkali metal salt type.

USE/ADVANTAGE - Water absorbing resin is used for wall material with smooth surface and agricultural sheet with reduced polarised light of sunbeams. It maintains its form due to good resistance to expansion of deformation.

0/0